S. ADM.
BRARY

OCT 2 3 1945

THE JOURNAL OF LAND & PUBLIC UTILITY ECONOMICS

INCLUDED IN THIS ISSUE

Railroad Land-Grant Rates, 1850-1945
David M. Ellis

A National Fuel Policy:
III.—Bituminous Coal: Postwar Prospects
Robert W. Weidenhammer

Postwar Farm Land Values?
Mark M. Regan and *Fred A. Clarenbach*

Garden Cities and the Metropolis
Lloyd Rodwin

Also

OTHER TIMELY ARTICLES AND BOOK REVIEWS

VOLUME XXI, NUMBER 3 AUGUST, 1945 PRICE $1.50 A COPY

SOCIAL RESEARCH

An international quarterly, founded in 1934, published by the

GRADUATE FACULTY OF POLITICAL AND SOCIAL SCIENCE
of the New School for Social Research, New York

Contents for September 1945 (Volume XII, Number 3)

United States Indian Administration as a Laboratory of Ethnic Relations ---------- JOHN COLLIER
Russia and Central Europe ---------- HANS ROTHFELS
Japan's Economic Imperialism ---------- FRITZ STERNBERG
From Estimates of National Income to Projections of the Nation's Budget ---------- GERHARD COLM
Commentary on "Great Britain's Trade Policy" (Note) ------ D. J. MORGAN
Rejoinder (Note) ---------- RICHARD SCHULLER

BOOK REVIEWS

Published in February, May, September and November

Subscription $3 a year (Foreign $3.50)—Single copies 75 cents

66 WEST 12TH STREET, NEW YORK 11, N. Y.

JOURNAL OF FARM ECONOMICS

Editor: *Warren C. Waite*
University of Minnesota University Farm, St. Paul 8, Minnesota

Volume XXVII, August, 1945, Number 3

Some major articles are:

Farm Technological Advance and Total Population Growth— ---------- JOHN M. BREWSTER
Agricultural Credit Policy in the United States, 1945 ------ JOHN D. BLACK
Research Determination of Economics of Scale -------- P. G. BRESSLER, JR.
Costs of Federal Agricultural Activities ---------- E. FENTON SHEPARD
Wartime Price Control of Fresh Citrus Fruits ---------- J. WAYNE REITZ
A Public Farm Land Appraisal Service ---------- KARL BRANDT

This Journal, a quarterly, contains in addition, notes, reviews of books, and a list of recent publications and is published in February, May, August, November by the American Farm Economic Association. Yearly subscription $5.00.

Secretary-Treasurer: ASHER HOBSON

DEPARTMENT OF AGRICULTURAL ECONOMICS
UNIVERSITY OF WISCONSIN, MADISON 6, WISCONSIN

THE JOURNAL OF LAND & PUBLIC UTILITY ECONOMICS

CONTENTS AUGUST, 1945

Railroad Land Grant Rates, 1850-1945 ..... DAVID M. ELLIS 207
A National Fuel Policy: III—Bituminous Coal: Postwar Prospects ..... ROBERT M. WEIDENHAMMER 223
Postwar Farm Land Values? ..... MARK M. REGAN *and* FRED A. CLARENBACH 236
Fixed Dividends for All Public Utility Stock .. ARTHUR PETER BECKER 243
Factors Affecting Value of Land and Water in Irrigated Lands ..... H. E. SELBY 250
Farming Opportunities for Veterans ..... HUGH H. WOOTEN 259
Garden Cities and the Metropolis ..... LLOYD RODWIN 268

Reports and Comments

On the 1944 NARUC Report ..... E. W. MOREHOUSE *and* T. R. AGG 285
Cost Trends in the Telephone Industry ..... FLOYD R. SIMPSON 286
Public Utility Financing in the Second Quarter of 1945 .... ORVILLE P. DEUEL 295

Book Reviews

Balkan Background (Newman) ..... *William Ebenstein* 297
Readings in Business Cycle Theory (Symposium) ..... *E. E. Hale* 298
A Time is Born (Garrett) ..... *Robert W. Harrison* 299
Comparative Economic Systems (Blodgett) ..... *Virgil L. Hurlburt* 301
The Farmer and the Rest of Us (Moore) ..... *P. E. McNall* 302
Economic Problems of Latin America (ed., Harris) ..... *Theodore Morgan* 303
City Development (Mumford) ..... *Lloyd Rodwin* 304
Plainville, U. S. A. (West) ..... *J. Edwin Losey* 305

PUBLISHED QUARTERLY BY THE UNIVERSITY OF WISCONSIN

DURING THE MONTHS OF FEBRUARY, MAY, AUGUST, AND NOVEMBER

Publication office: 121 South Pinckney Street, Madison Wisconsin
Editorial Office: Sterling Hall, University of Wisconsin, Madison 6, Wisconsin
The contents of the *Journal* are indexed in the *Industrial Arts Index*.

Entered as second-class matter, January 3, 1938, at the post-office at Madison, Wis., under the Act of March 3, 1879. Acceptance for mailing at special rate of postage provided for in section 1103, Act of October 3, 1917, authorized October 12, 1922. Printed in the United States of America.

Subscription Rates: $5 a year; $1.50 a copy. Remittances may be made by personal checks, drafts, post-office or express money orders payable to the Journal of Land & Public Utility Economics.

Agents of the *Journal* in Great Britain, B. F. Stevens & Brown, Ltd., 28-30 Little Russell St., British Museum, London, W. C. 1.

Copyright: Contents of this issue are covered by copyright, 1945, by the University of Wisconsin. Copyright, 1945, in Great Britain.

THE JOURNAL OF LAND & PUBLIC UTILITY ECONOMICS

Published by The University of Wisconsin

EDITORIAL BOARD

Land Economics

LEONARD E. SALTER, JR.
University of Wisconsin

V. WEBSTER JOHNSON
U. S. Bureau of Agricultural Economics

Public Utilities

MARTIN G. GLAESER
University of Wisconsin

H. J. O'LEARY
Wisconsin Public Service Commission

E. W. MOREHOUSE
With Trustees, Association Gas & Electric Corp., New York

Managing Editor

MARY E. AMEND

Urban Land

RICHARD U. RATCLIFF
University of Wisconsin

HELEN C. MONCHOW
National Housing Agency
Washington, D. C.

Regional Planning

JOHN M. GAUS
University of Wisconsin

HOMER HOYT
New York Regional Plan Association

FINANCE COMMITTEE

ASHER HOBSON
and
DON D. LESCOHIER
University of Wisconsin

All Members of the Editorial Board
On the Campus of the University of Wisconsin

EDITORIAL COUNCIL

GRAHAM ALDIS
Aldis & Company, Chicago; former President, Building Owners and Managers Association of Chicago.

CHARLES S. ASCHER
Regional Representative, New York City, National Housing Agency.

MORTON BODFISH
U. S. Savings & Loan League, Chicago, Illinois

JAMES C. BONBRIGHT
Professor of Finance, Columbia University.

J. COKE
Senior Economist, Economics Division, Dominion Dept. of Agriculture, Ottawa, Canada.

F. W. DOOLITTLE
Director, North American Company, New York City.

JOSEPH LARONGE
President, Joseph Laronge, Inc., Cleveland, Ohio.

D. F. PEGRUM
Chairman, Department of Economics, University of California, Los Angeles.

PAUL P. PULLEN
New Business Officer, Chicago Title & Trust Company.

PAUL JEROME RAVER
Administrator, Bonneville Power Administration, Portland, Oregon.

EMERSON P. SCHMIDT
Committee on Economic Policy, Chamber of Commerce of the U. S., Washington, D. C.

HENRY SCHMITZ
Professor and Chief, Division of Forestry, University of Minnesota.

PAUL E. STARK
Realtor, Madison, Wisconsin.

HENRY C. TAYLOR
Director, Farm Foundation, Chicago, Illinois.

WALTER H. VOSKUIL
Chief Mineral Economist, Illinois State Geological Survey, Urbana, Illinois.

GORDON WHITNALL
Consultant in Planning and Government; Instructor in Planning, University of Southern California.

THE JOURNAL OF LAND & PUBLIC UTILITY ECONOMICS

AUGUST 1945

VOLUME XXI NUMBER 3

Railroad Land Grant Rates, 1850-1945

By DAVID MALDWYN ELLIS*

IN 1850 Stephen A. Douglas adroitly maneuvered through Congress the first railroad land grant and the state of Illinois promptly regranted it to the Illinois Central Railroad Company. Within the next two decades Congress was to transfer approximately seven per cent of continental United States to aid in the construction of railroads in the western and southern states. Douglas realized quite clearly the significance of this policy both in the construction of his favorite project and in the development of agriculture and industry throughout the West. But he could hardly have foreseen the endless controversies in the courts and the interminable debates in Congress which the interpretation of these acts and the failure of many companies to live up to the terms of the grants were to provoke. Certainly he and other proponents of land grants to railroads could not have predicted that in 1944 the single clause providing for rate concessions on the transportation of federal troops and military property would directly or indirectly save the government an estimated $250,000,000.

Our railroad land grant policy bequeathed to the country a legacy of thorny problems. Before we can fully understand these problems, we must first outline the principal facts about land grants. Why did Congress grant lands to railroads between 1850 and 1871? How much land did Congress award? What was the value of this land? These questions and the wide variety of answers to them played an important part in determining the attitude of Congress toward the forfeiture of grants. They influence its present policy in regard to the elimination of land grant rates.

Certain clauses in the original grants deserve particular attention. Most important of these were the requirements that companies build their lines within a certain time, sell their holdings according to specified conditions, and grant the government special rate concessions. Failure to observe the first two requirements provoked widespread resentment among

* Assistant Professor of History, University of Illinois, Urbana. The author acknowledges his indebtedness to Professor I. L. Sharfman, Chairman of the Department of Economics, University of Michigan, for helpful criticism in the preparation of this manuscript. He also received valuable aid from the Social Science Research Council in the collection of material.

the western farmers. It contributed to the groundswell of anti-railroad feeling, particularly in the period between 1870 and 1895 when extension of rail lines was in great demand. Observance of the third condition has stirred the railroad industry recently to vigorous protest. The railroads are looking with envious eyes upon the large sums which they forego as a result of these rate concessions on government traffic. If they could force the government to pay the full rate, they could look forward with less fear to the postwar world of higher operating expenses, reduced traffic, and renewed competition.

A combination of compelling and persuasive reasons lay behind the government policy of public aid for railroad construction. Private capitalists during the middle decades of the nineteenth century either did not dare to risk, or more usually did not command, financial resources sufficient to construct new lines into the undeveloped sections of the country. As a result promoters turned to the federal, state, and local governments for public aid. Their avalanche of petitions for aid met with a cordial response. Congress could no more deny subsidies to railroads than our present Congress can ignore the appeals of airline companies for aid. The need was urgent. The rolling prairies and the mineral wealth of the West were virtually inaccessible and practically worthless unless settlers could ship their products to market by rail. Military and nationalistic considerations also entered the picture. Leaders in Congress recognized the importance of the railroads in binding the distant state of California and the Pacific Northwest to the rest of the country. Furthermore, the speedy construction of the railroads was expected to enhance the value of the lands remaining to the government. The clamor for public aid became irresistible. Every western town, village, and crossroads boasted characters similar to the famous Beriah Sellers, who confidently asserted that their "New Eden" would become the future metropolis of the western hemisphere—if only a railroad could be induced to pass through that region.

Amount and Value of Land Grants to Railroads

Between 1850 and 1871 Congress granted land to some seventy-odd railroad companies. Prior to 1862 the grants were made to the state governments which thereupon conveyed the land to selected railroad companies. The Union Pacific grant of 1862 was made directly to the railroad, as were most of the grants awarded after that date. Studies by the Federal Coordinator of Transportation, the late Joseph B. Eastman, and by the Board of Investigation and Research have estimated that the railroads actually received a total of 130,401,606 acres of land directly from the federal government.[1] Of course, the amount of land originally granted was considerably larger.[2] But the railroads were rarely able to earn the theoretical amount to which they were entitled. Settlers occupied millions of acres before

[1] The report of the Federal Coordinator of Transportation has assembled a wealth of data on land grant acreage. See *Public Aids to Transportation*, 4 vols. (Washington: 1938-1940) II, p. 32 and Table 13, pp. 107-115. The Transportation Act of 1940 set up the Board of Investigation and Research which was authorized to estimate the extent and effect of public aid. This board has brought down to date the figures of the Coordinator's report. See Board of Investigation and Research, "Land Grants to Railroads and Related Rates." *A Report submitted to the House Committee on Interstate and Foreign Commerce with Reference to H. R. 4184*, (Washington: March 1944). This paper will rely on the figures of these two reports.

[2] Thomas Donaldson stated in his famous book, *Public Domain*, that if all the lands were available and if the corporations complied with the laws, it would take 215,000,000 acres to meet their requirements, p. 268. Four transcontinental systems received the greatest acreage. The Northern Pacific received 39,843,053 acres; the Southern Pacific, 21,648,681 acres; the Union Pacific, 18,979,659 acres; the Atchison, Topeka, and Santa Fe, 14,886,795 acres

the railroads could survey their lines and patent their lands. Other grants overlapped. The government also recovered much acreage through forfeiture, through the adjustment of conflicting claims, and through the releases of unpatented lands.

During the same period nine states granted 48,883,372 acres to aid railroad construction. These states, with the exception of Maine and Texas which gave lands from their own public domain, turned over land (mainly swamp lands) which the federal government had previously transferred to them. The total of land grants by both federal and state governments reaches the figure of 179,-284,978 acres,[3] an area greater than that of our largest state, Texas. Even to a generation brought up on Wall Street pools, New Deal deficits, and soaring war budgets, the extent and potential value of this imperial donation startle the imagination.

How to estimate the value of the land grants is a question which troubles many students of transportation. But this is no mere academic question. Rather it is a matter of heated argument between the railroads and rival motor and water carriers. For example, Dr. C. S. Duncan, economist for the Association of American Railroads, fixes the total monetary value of the federal land grants at $151,358,652.[4] At the other extreme is the estimate of the Mississippi Valley Association, which is an ardent exponent of subsidies for waterways. This organization declared that the land grants were worth $2,480,000,000.[5]

The main issue in dispute is quite simple, although the data are partial and somewhat confusing. We have two, or possibly three major alternatives. We can take the value of the lands at the time of the grants. Or we can consider the net proceeds derived from the lands plus the value of the lands still held by the railroads. A third possibility, which was adopted by the Mississippi Valley Association, is to take the net proceeds, subtract rate concessions, but add interest on the remainder at 4 per cent for a period of over 60 years. The arguments for the first two viewpoints deserve careful consideration.

Spokesmen for the railroads naturally seek to minimize the amount of aid which they received. They argue that it is proper to estimate the value of the lands to the government at the time of donation. Land at that time was a drug on the market. The average price which the government received was 97.2 cents an acre.[6] If we multiply this figure by the amount of land grants actually received by the railroads, we get a total of $174,264,998.61. Of this total approximately $125,000,000 came from the federal government. The argument runs as follows. The government made a shrewd bargain with the railroads. In exchange for a fraction of the public domain the government secured the construction of the railroads. Still further benefits accrued to the government. The railroads enhanced the value of the lands which the government retained. Rate concessions on the carriage of mail, freight, and military personnel likewise compensated the federal government for its grant of land. The railroads maintain that the government has derived much more in the way of

[3] This total includes the 2,966,384 acres of land which the federal government took away from the Oregon and California Railroad company. "Land Grants to Railroads and Related Rates," pp. 8-9.

[4] *What is Public Aid to Transportation*, booklet published by the Association of American Railroads. (Washington: 1940), p. 31.

[5] Cited in *Public Aids to Transportation*, II, p. 33. For a summary of conflicting estimates, see *ibid.*

[6] *Ibid.*, pp. 35, 36. Dr. C. S. Duncan, economist for the Association of American Railroads, arrives at a slightly lower sum. Duncan confines this estimate to states where lands were actually granted. See *What Is Public Aid To Transportation*, p. 31.

benefits than it lost in the form of public land. They hold that the value of the lands granted is that value which the government parted with during the years 1850 to 1871.

This approach suffers from several drawbacks. First of all, there seems little question that what the railroads were primarily interested in was the potential value of the grants. In fact, they confidently and, as it turned out, correctly expected to realize a sum far in excess of the current value of backcountry lands. They secured credit and actually disposed of much of the land at prices higher than those prevailing during the land grant era. What the railroads received as public aid must therefore be measured by what they received from the land. Otherwise it would be necessary to take the original grants as a capital gift of $125,000,000 upon which annual interest charges would be computed. That sum would earn $6,250,000 annually if computed at five per cent. At the end of 75 years this sum would pyramid to the total of $468,750,000.[7]

The sounder method is to estimate the amount of public aid which the railroads actually received. This method is the one adopted in the report of the Federal Coordinator. More recently the Board of Investigation and Research has revised and brought down to date the statistics of land grant receipts which the Coordinator's report had compiled.[8] The Board estimates that gross receipts aggregated $602,445,137 up to December 31, 1941. From this sum must be deducted $167,638,466 expended for administration, sale, and taxes connected with the land. The total net proceeds are $434,806,671. This total is not complete. The railroads still held some 16,000,000 acres in 1941. The Bureau of Valuation of the Interstate Commerce Commission has estimated that these holdings are worth approximately $60,000,000. If we add this amount to the net proceeds, we have the gross amount of public aid received by the railroads from the federal and state land grants. The federal grants account for $440,400,051 of the total of $495,490,703. This total does not include the profits made by subsidiary or affiliated companies which secured valuable oil, mineral, and lumber lands.[9] It takes no account of the numerous right-of-ways given to the railroads by the federal government.[10]

We can summarize very briefly the salient facts of our land grant policy. Almost ten per cent of the United States passed into the hands of the railroads. The companies acquired about 179,000,000 acres which eventually netted them at least $500,000,000.

Conditions in Land Grants

The Illinois Central grant which was itself patterned after earlier grants to canals and roads served as the model for subsequent acts.[11] This grant included not only the right of way but also alternate sections on both sides of the road within a distance of six miles. The government retained the intervening sections but the minimum price of such land was raised to $2.50 an acre.[12] If settlers had made homestead or preemption claims on land within the primary zone, the railroads had the right to secure lieu lands within a secondary

[7] The best statement of this argument may be found in "Land Grants to Railroads and Related Rates," pp. 13-15.

[8] This paper will follow the estimates of the board. *Ibid.*, pp. 16-28. See also *Public Aids to Transportation*, II, pp. 37-40 and Table 13, pp. 107-117.

[9] Ibid., pp. 38-39. John Ise, *United States Oil Policy* (New Haven: Yale University Press, 1928) pp. 292-293.

[10] For an excellent discussion of acreage and value of right-of-way grants, see *Public Aids to Transportation*, II, pp. 48-52.

[11] 9 *Stat.* 466.

[12] Note that the Union Pacific grant did not include this clause.

band stretching beyond the first zone. Almost every grant contained a time limit. If the railroad did not complete its line within a certain number of years (usually ten), the lands were to revert to the government. Toward the end of the land grant period, Congress inserted additional safeguards. Grants to the Pacific roads and several other western lines reserved to the government all mineral lands except iron and coal. Several of the last acts to slip through Congress had attached to them a "homestead clause" which George Washington Julian and other land reformers insisted upon putting into the grant.[13] This clause provided that the company must sell the land to actual settlers in 160-acre tracts at not more than $2.50 an acre. All but a handful of grants contained the provision which required the transportation of mail, troops, and government property at reduced rates.

The application of these provisions to speculative railroad companies penetrating regions so sparsely settled and so unproductive of immediate traffic inevitably ran into serious difficulties. The collapse of railroad credit during the panic of 1873 and the blundering tactics of the General Land Office further complicated the smooth working of this policy of public aid. Practically every provision has precipitated bitter controversy or prolonged litigation at some time or other. A host of issues arising out of the land grants has congested the court calendars, absorbed the attention of Congressional committees, and called forth hundreds of administrative rulings. Of course, the various clauses were important at various times. Thus the failure to construct the road on time, a crucial issue before 1890, is today a dead letter.[14] Correspondingly, an earlier generation paid little attention to rate reductions on government freight. That issue has assumed importance only within the last decade.

Rate Concessions on Government Traffic

Rate concessions on the transportation of troops and military goods are today saving the War and Navy departments staggering sums every month. The yearly savings under this clause was relatively insignificant until recent times. The expansion of governmental activities under the New Deal did boost the deductions to substantial amounts, but the savings still represented a minute fraction of total railroad revenues. It was the threat of war after 1938 and, most important of all, war itself which increased the flow of military and naval property passing over our rails to unprecedented levels. The trickle of goods in 1938 has since become the torrent of 1945. Figures on rate concessions give some idea of the tremendous expansion of government traffic. During the late 1920's the government was saving about $2,500,000 a year.[15] Secretary of War, Henry L. Stimson, estimated that in 1944 his department alone would save $200,000,000 in charges.[16]

Practically all land grants contained a clause providing for rate reductions on government traffic. But the original grants did not contain identical provisions. Examination reveals four distinct categories, although the trend down the

[13] *Appendix to Cong. Globe*, 40 Cong., 3 sess., pp. 70-71.

[14] For information on the forfeiture movement, see David Maldwyn Ellis, *The Forfeiture of Railroad Land Grants.* (Ithaca, New York: Cornell University, 1939), MS Thesis.

[15] *Public Aids to Transportation*, II, p. 44. Compare this figure with the $5,000,000 estimate of the Association of American Railroads. See "Eliminating Land-Grant Reductions in Compensation for Transportation," *Hearings* before a subcommittee of the House Committee on Interstate Commerce, 1938, 75 Cong., 3 sess., p. 51. Hereinafter this report will be cited *House Hearings . . . 1938.*

[16] "Repeal of Land-Grant Rates on Transportation of Government Traffic," *Hearings* before a subcommittee of the Senate Committee on Interstate Commerce, 78 Cong., 2 sess., pp. 120-121. Hereinafter this report will be cited *Senate Hearings . . . 1944.*

years has been to iron out differences and to place all aided companies on an equal footing.[17] A few grants called for free carriage of government traffic. A few others, notably the Union Pacific, made no provision for special reductions to the government. And still others left the rates to the discretion of Congress.

The most important, most controversial, and in fact the controlling category is the free-toll group which accounted for 12,851 miles of the total land grant mileage of approximately 17,600. The language of the Illinois Central grant is typical. It reads:

> " . . . and the said railroad . . . shall be and remain a public highway for the use of the government of the United States, free from toll or other charge upon the transportation of any property or troops of the United States.[18]

The terms, "public highway" and "free from toll" were sufficiently indefinite to permit considerable judicial interpretation.

The outbreak of war in 1861 brought the question of land grant rates to the fore. The War Department voluntarily awarded to "free toll" roads two cents a mile for passenger service and reasonable rates on freight although each of these categories was to be given a discount of one-third. This arrangement continued for over a decade despite protesting voices in Congress. Finally, in 1874, Congress took a bold stand and cut off future payments to carriers. At once the railroads challenged this action. The Lake Superior and Mississippi Railroad brought suit against the government and won its case in the Supreme Court.[19] In a decision which was somewhat devious in reasoning and which relied on a questionable interpretation of historical material, the bare majority of the court distinguished between toll and transportation charges. These judges held that "public highway" referred to the roadbed only. Consequently, the United States government must compensate the railroads for the actual use of rolling stock, services, and other operating costs. Shortly thereafter the Court of Claims devised a formula whereby the carrier was to receive 50 per cent of the rates paid by the public.[20] That amount was considered necessary to reimburse the carrier for the costs of transportation.

The drive to place all land grant railroads on the same basis has achieved its goal. Today all aided lines extend to the government the 50 per cent reduction.[21] It took several statutes, however, to bring about this uniformity. In 1892 the congressional-rate lines were placed on that basis. The Transportation Act of 1920 placed all the free grant portion of the Missouri Pacific and the Rock Island in Missouri and Arkansas on the same footing. Similarly, in 1928, the no-charge clause of the Roseville Junction-Portland line of the Southern Pacific Railroad was repealed. The reason for this action as well as the final elimination of the remaining no-charge roads in 1933 was the feeling that all land

[17] The best discussion of these categories is found in Norris Kenny, "The Transportation of Government Property and Troops over Land-Grant Railroads," *Journal of Land & Public Utility Economics*, November 1933, pp. 370-379. See also *Public Aids to Transportation*, II, pp. 40-42.

[18] 9 *United States Statutes*, 466.

[19] *Lake Superior and Mississippi Railroad Company* v. *United States*, 93 *U. S.*, 442. Lewis H. Haney, *A Congressional History of Railways in the United States*, University of Wisconsin Bul. 342, Economics and Political Science Series, vol. 6, no. 1, Madison, 1910, p. 34. Haney feels that Congress intended no charges on government goods. *Ibid.*, p. 36. Norris Kenny, *loc. cit.*, p. 375.

[20] 15 *Court of Claims*, 126 (December term, 1879). This formula seems to be outmoded. It fails to reflect changes in ratio of equipment to roadbed and net railway operating income to total revenue. Dr. Duncan of the Association of American Railroads has applied the same formula to the earnings of the period, 1924-1935. The percentages were uniformly lower than 50 per cent. "Repeal of Land-Grant Rates on Transportation of Government Traffic," *Hearings* before a subcommittee of the House Committee on Interstate Commerce, 1944, 78 Cong., 2 sess., p. 32. Hereinafter this report will be cited as *House Hearings* . . . 1944.

[21] *Public Aids to Transportation*, II, p. 42. For references see footnote 5, *ibid.*, p. 42.

grant railroads should receive equal treatment.[22] Furthermore, the existence of free rate lines resulted in unnatural diversion of traffic from direct routes and seriously overburdened a few carriers. The "full charge" railroads have voluntarily made equalization agreements with the government in order to participate in the transportation of federal troops and freight.

Congress has always made separate arrangements in regard to the carriage of mail. The most important law was that of 1876 which fixed the compensation to be paid to all aided lines at 80 per cent of the normal rates.[23] This clause saved the government an estimated $76,346,000 before the Transportation Act of 1940 eliminated this concession altogether.[24]

Equalization of Rates by Non-Land-Grant Railroads

Strangely enough, the government derives a greater saving in rates from those carriers which received no land grants but which have signed so-called equalization agreements. These railroads agree to apply to government shipments moving over their lines the lowest net land grant charges available to the government via any route between the same points. The pressure to secure traffic has been so compelling for our railroads, burdened as they are with heavy fixed costs and (in peacetime) unutilized capacity, that they have eagerly bargained for government traffic even though it might barely cover out-of-pocket costs.[25] As a result practically all railroads carry government freight at reduced rates.[26] Some steamship, barge, and trucking companies have likewise entered into equalization agreements. These reduced rates therefore affect the entire rate structure and not merely the land grant railroads.

Perhaps an illustration will explain more clearly how these equalization agreements operate. A shipment of goods from Chicago to San Francisco would normally take the Rock Island to Council Bluffs, the Union Pacific from that point to Ogden, Utah, and the Southern Pacific to San Francisco. This route is 2,273 miles long. None of the original companies except for a small portion of the Rock Island were required to grant special rates. If there were no equalization agreements, the charges on a shipment would be 94.73 per cent of the rate on commercial shipments. But the equalization agreements reduce this charge to 53.52 per cent. This lower figure is computed from the charge that would apply provided the shipment utilized the greatest amount of land grant mileage available. Such a route would be from Chicago to La Salle, Illinois, via the Rock Island, thence to Le Mars, Iowa, via the Illinois Central, thence the Chicago, St. Paul, Minneapolis and Omaha to St. Paul, thence Northern Pacific to Portland, Oregon, and thence Southern Pacific to San Francisco. This route adds up to 3,788 miles or 63 per cent longer than the normal service route.[27]

Other examples illustrate even more graphically the startling results obtained by computing charges on the basis of circuitous routes. The law requires federal officials to figure out that route upon which the greatest amount of deductions can be claimed. Sometimes the

[22] Commissioner Eastman, the Secretaries of War, Navy, and Interior and the Postmaster General favored elimination of free rates on the Southern Pacific branch line. *House Reports*, 1538, 70 Cong. 1 sess.

[23] 19 *Stat.* 78, 82.

[24] "Land Grants to Railroads and Related Rates," p. 41.

[25] *House Hearings . . .* 1944, p. 119.

[26] *Public Aids to Transportation*, II. See map opposite page 42 for railroads which have "equalized" their rates.

[27] *House Hearings . . . 1944*, pp. 44ff. *House Reports;* 1408, 78 Cong., 2 sess., p. 5.

routing selected is completely impracticable. Within the year the Supreme Court has unanimously upheld this position. The government may demand the lowest net rate without regard to whether the route affording the lowest rate is excessively circuitous and not capable of being used to advantage.[28]

Estimated Amount of Rate Concessions

Any attempt to estimate the total savings from rate concessions runs into serious difficulties. In the first place the records of both railroads and the government are incomplete and scattered. Furthermore, they do not yield exact information.[29] Still more controversial is the basis of computation. Shall the savings derived from equalization agreements be included in the total? Dr. C. S. Duncan, speaking for the Association of American Railroads, answers in the affirmative.[30] The report of the Federal Coordinator of Transportation takes the other side. A further complication arises from the current dispute between railroad experts and the General Accounting Office over what constitutes military or naval property. The railroad managers are afraid that after their bills are audited the government may demand refunds. It will take several years before this question of refunds is finally settled. The final figure on savings is therefore in doubt.

There are strong arguments in favor of and in opposition to the inclusion of equalization savings. Admittedly, carriers signing equalization agreements have done so voluntarily. Nevertheless, these rate reductions would never have come into existence if the government had not adopted the land grant policy. Equalized rates are inseparably connected with our land grants. The savings, moreover, are as real and as welcome as those received from the carriers who secured large tracts of land. The war emergency underscored one further point. Today the land grant roads could not possibly handle the vastly expanded traffic. Any effort to utilize these lines exclusively would only result in costly delays and intolerable congestion.

The fact remains, however, that equalization rates were voluntarily entered into for the sake of profit. To say in effect that savings accruing under these agreements diminished the value of the lands to the railroads which got them is a somewhat attenuated argument. The fact that the Great Northern Railroad accepted lower rates in order to share in government traffic did not make the 39,000,000-acre grant to the Northern Pacific less valuable. It does no good to argue that the railroad industry as a whole has necessarily assumed a heavier burden because lower rates have been extended to the government through land grant and equalization rates. The carriers and the government have never considered these rate concessions as compromising in any way their right to earn a reasonable return on the fair value of their property.[31]

Prior to the 1930's the volume of mail, troops, and government property which moved over the roads was comparatively small. Of course, the first World War saw a vast increase in troop and property movement but the issue of land grant rates did not arise because the government was operating the railroads and was guaranteeing their income.[32] But in normal peacetime our army and navy

[28] *Southern Railway* v. *United States*, U. S. Supreme Court, 88 Lawyer's Edition, 809.

[29] Experts on the staff of the Coordinator's committee have arrived at these figures. *Public Aids to Transportation*, II. p. 46.

[30] *What is Public Aid to Transportation*. pp. 30-33.

[31] See *Public Aids to Transportation*, II, p. 47 for a more extended analysis.

[32] Savings of course continued to be substantial although concealed.

have operated on a modest scale. The various executive departments have not engaged in far-flung economic activities until recently.

With the coming of the depression and in particular with the spurt in rearmament after the pact of Munich, government traffic rose by leaps and bounds. The public works program and the relief activities of the New Deal necessitated the shipment of large quantities of building materials, equipment, and food. Agencies such as the Tennessee Valley Authority, the Civilian Conservation Corps, and the Public Works Administration bought and transported property of all kinds. By 1938 the menace of Nazism and Japanese imperialism could no longer be ignored. Since that date appropriations first for defense and then for war have raised the government's transportation bill to astronomical figures.

The Board of Investigation and Research has made some estimates of rate concessions. It has examined the estimates submitted by the War, Navy and Postoffice departments and arrived at the grand total of $340,783,000 up to June 30, 1942.[33] By the end of 1942 deductions were running at $18,500,000 a month. Throughout 1943 and 1944 the customary figure cited has been $20,000,000 a month.[34] If we accept this monthly figure as correct, we find that the total saving to December 31, 1944 reached the amazing sum of $940,000,000. By April 1, 1945 the government received approximately one billion dollars—a windfall which though small compared with our war budgets nevertheless far exceeds the amounts derived from the sale of the land grants.

In connection with estimating the value of deductions from land grants, the gross receipts tax which the Illinois Central Railroad has been paying and is still paying to the state of Illinois deserves brief mention.[35] When the state legislature turned the land grant over to the company, it required the railroad (after an interval) to pay seven per cent of the gross receipts from its so-called charter lands in lieu of all other state taxation on these lines. This tax was intended to compensate in part for the land grant. Since the Illinois Central would otherwise have paid taxes on the same basis as other railroads, it is only fair to regard the balance between its actual payment and that based on the normal tax rate as compensation for the grant of lands. The Illinois Central has consistently paid more than "normal taxes." By December 31, 1941 the cumulative total of excess payments had reached $34,600,000. This sum should also be included in any discussion of land grant deductions.

The student must accept the above figures with caution. They are only approximations based upon "informed estimates," to borrow a phrase used by the Federal Coordinator. These figures are useful for descriptive purposes, that is, to indicate in broad outline value of the land grants and the extent of land grant deductions. They give us some idea whether the United States made a good bargain in its land grant policy. To be sure, the total of one billion dollars includes concessions from not only land

[33] *Land Grants to Railroads and Related Rates*, p. 41.

Troops and property to Dec. 31, 1927 (not separable)		$ 56,000,000
Troops:		
Jan. 1, 1928–Dec. 31, 1940	$6,911,000	
Jan. 1, 1941–June 30, 1942	25,340,000	32,251,000
Property:		
Jan. 1, 1928–Dec. 31, 1940	79,053,000	
Jan. 1, 1941–June 30, 1942	94,702,000	173,755,000
Total for troops and property to June 30, 1942.		262,006,000
Mail: To June 30, 1941		76,346,000
Express: To June 30, 1942		2,431,000
Estimated grand total to June 30, 1942		$340,783,000

[34] *Ibid.*, p. 42.

[35] *Public Aids to Transportation*, II, pp. 45-46.

grant railroads but also from those railroads which have voluntarily "equalized" their rates. To determine precisely how much of this total may be attributed to each source is an impossible task. Certainly an estimate of 50 per cent would be more than generous to the land grant roads. If we arbitrarily assign one-half of the total savings to the original land grant roads, we must scale down our estimate of one billion to $500,000,000.[36] This revised figure compares roughly with the proceeds which the railroads derived from the land.

Movement to Eliminate Rate Concessions

The movement to eliminate rate concessions really got under way in 1938. Prior to that date only a few scattered voices had urged the repeal of these rates. Of course, the railroads had never hesitated to stress the value of these concessions and to urge their repeal.[37] But the comparatively insignificant sums involved did not make it a pressing issue. Rather, railroad spokesmen appear to have used the rate concessions as a counter argument against the extension of public aid to highways and water carriers. Sponsors of these rival means of transportation kept demanding equal treatment and continually referred to the land grants which the railroads had received. In self-defense spokesmen for the rail carriers minimized the value of the land and declared that rate concessions had more than repaid the United States government for its aid.

In 1938 the railroad industry faced financial collapse. So alarming had the decline of earnings become that the President appointed a committee of three members of the Interstate Commerce Commission to investigate the situation and to make emergency recommendations in order to stave off further bankruptcies.[38] Thirty-seven class I railroads, with about one-third of the railroad mileage, were already in the hands of the courts. Increasing labor costs and rising taxes coupled with a sharp decline in traffic threatened the solvency of all but the strongest companies. The growing competition of motor trucks, water carriers, pipe lines, and other carriers prevented the Commission from granting increases in rates. To meet this desperate situation the Committee of Three made several recommendations providing for relief of emergency and permanent nature. Among their minor recommendations was the repeal of the land grant rates which they estimated cost the railroads $7,000,000 in 1937.

Late in May and early in June, 1938, the House Committee on Interstate and Foreign Commerce held hearings on the proposal to repeal land grant rates. At this hearing many interested parties had the opportunity to present testimony and to submit evidence. In general the line-up of advocates and opponents has remained the same from 1938 to 1945. The railroads individually and collectively, the shippers, the Brotherhoods, the Interstate Commerce Commission, and trucking associations have come out strongly for repeal. The opposition

[36] Robert E. Webb, Chairman of the Board of Investigation and Research estimated that equalization agreements brought in far more than one-half. See *Senate Hearings . . . 1944*, p. 166. This figure makes no pretense at exactness. Thus estimates of past and current savings are only approximations. The division between equalizing and land grant roads is purely arbitrary. The Illinois Central excess tax is not included. No account is taken of value of lands still held by railroads. I refer the student to the estimates of the Coordinator. *Public Aids to Transportation*, II, pp. 40-48. See also "Land Grants to Railroads and Related Rates."

[37] For an early statement in favor of repeal, see C. S. Duncan, "Land Grant Rates and Fares," published in pamphlet entitled *Rails and Roads*, (Washington: March 1931) pp. 56-65. This pamphlet is reprinted in *House Hearings . . . 1938*, pp. 64-70. See also the statement of Dr. Duncan before the Coordinator of Motor Transportation, I.C.C. Docket 23400, March 17, 1931, reprinted in *ibid.*, pp. 70-73.

[38] See report, "Immediate Relief for Railroads," *House Document*, 583, 75 Cong., 3 sess.

draws its strength from those executive departments of the federal government which either fear higher charges or hope to use repeal as a weapon to recover lands still held by the railroads.

The interest of the railroads in repeal is obvious. The carriers look with envious eyes upon the additional revenue which full rates would bring them. Furthermore, repeal would free them from the trouble of computing complicated rates. Perhaps the carriers overemphasize the complexities of administration. Nevertheless there seems little question that uncertainties arising from the possible recapture of overpayments are causing deep concern to managers.

Less obvious are the reasons why shipping associations should endorse repeal so vigorously. Representatives of the National Industrial Traffic League have appeared at every hearing to urge the end of land grant rates. Some 130 individual shippers wrote letters to the House Committee in 1938 urging the elimination of land grant deductions.[39] The United States Chamber of Commerce and state bodies of the same organization have repeatedly echoed the same sentiment. F. F. Estes, speaking for the National Industrial Traffic League, denied that repeal was a "railroad bill." His organization had gone on record as early as 1936 for repeal and had spearheaded the drive against rate concessions.[40]

Shippers dislike the deductions for several reasons.[41] First of all, they argue that the government is failing to pay a fair share of the transportation burden. Consequently other shippers have to pay higher rates. Secondly, shippers find land grant rates result in discrimination and confusion. Producers of materials not located on land grant roads are at a disadvantage as compared with producers located on the aided lines. Government officials are required by law to buy where they can get the cheapest delivered cost. A bidder on a non-land-grant road must absorb the difference between the normal rate from his shipping point and the reduced land grant rate from the shipping point of his competitor. Thus these rates take away from some shippers the advantages to which they are properly entitled because of geographical location. Furthermore, shippers find it difficult to find out what land grant rates are in effect. The government does not publish the rates for private circulation. The average shipper cannot afford to hire specialists who can untangle the complexities. As a result he has to compete for government business more or less blindly.

Other interested groups testified before the House Committee of 1938. The late Joseph B. Eastman, who was to appear again in 1942, thought that repeal would help solve the financial troubles of the railroads.[42] Since 1938 the Interstate Commerce Commission and its members have consistently recommended the elimination of land grant rates.[43] Equally consistent has been the support of the Railroad Brotherhoods. Although their interest is less direct, the labor leaders have recognized that rate concessions contribute to the financial distress of the industry. Any measure which would boost railroad earnings would therefore enable the carriers to follow a more liberal wage policy.[44] Motor carriers have likewise endorsed the program of

[39] Ibid., pp. 42-43. For a similar list, see *House Hearings . . . 1942*, pp. 93-94.

[40] *Senate Hearings . . . 1944*, p. 90. The annual meeting of the National Industrial Traffic League again called for repeal, *Railway Age*, Nov. 25, 1944, p. 814.

[41] *House Hearings . . . 1944*, pp. 182 ff.

[42] *House Hearings . . . 1938*, pp. 1-16.

[43] *Annual Report of the Interstate Commerce Commission, 1941*, pp. 141-142; ibid., 1943, p. 133. *Senate Hearings . . .* 1944, pp. 6 ff.

[44] For typical statements, see *House Hearings . . . 1944*, pp. 154, 188-194, 194-198.

their arch rivals. Land grant rates have forced them to cut their own rates drastically in order to participate in government traffic. The war has accentuated the problem tremendously. A spokesman for the trucking industry estimated that in 1944 government freight amounted to 70 per cent of the freight total. Voluntary rate concessions absorbed 15 per cent of the industry's total revenues.[45]

The drive for repeal began to win success in 1940. The Transportation Act of that year made important modifications in the existing arrangements. The House committee on Interstate and Foreign Commerce apparently favored outright repeal, but the members agreed to a compromise which would have more chance of getting through Congress.[46] Section 321 of the act provided for the end of land grant rates insofar as they applied to the transportation of mail and "civil" property of the federal government. Land grant deductions, however, still held for troop movements and shipment of military property.

Perhaps the most interesting clause in the act was that which required land grant railroads to continue the transportation of all government property and troops at the customary 50 per cent reduction until they filed with the Secretary of the Interior releases to any claims for lands. Despite the fact that the last grant had passed through Congress as long ago as 1871, some railroads had failed to make selections and to patent all the lands to which they were entitled under the original acts. This clause—obviously a bribe—stimulated 36 of the major systems representing 71 early land grant roads to make formal releases before the deadline of September 17, 1941. Approximately 8,000,000 acres still claimed or still in the process of adjustment reverted to the public domain.[47] Thus ended one of the last chapters in the history of railroad land grants.

Scarcely had the Act of 1940 gone into effect before the government and the railroads began to quarrel over the definitions of such terms as "military or naval property" for "military or naval use."[48] The needs of total war have blurred the clear-cut distinctions between military and non-military property in much the same fashion that modern warfare has obliterated most distinctions between civilian and soldier, homefront and battlefront. To take but one example. How shall the railroads bill the transportation of lend-lease materials? These include a variety of goods—munitions, clothing, food, tools, and the like. Some of the food and the clothing is for civilian and not military use. Furthermore, it is to be used by foreign governments and not by the United States government. Similar difficulties arise from the demand by the Defense Plant Corporation and the Federal Housing Administration for land grant deductions. The Comptroller General has permitted the Maritime Commission the power to determine whether the ships it is constructing are destined for military or for civilian purposes.

Naturally the railroads interpret these terms narrowly and they have been billing the government on the basis of their regular tariff charges. Government officials have usually paid these bills without question, but they have passed the vouchers to the General Accounting Office for audit. Unfortunately, this

[45] *Senate Hearings . . . 1944*, p. 97.

[46] See testimony of Congressman Holmes, *House Hearings . . . 1942*, p. 131.

[47] For press releases issued by the Department of the Interior, see *House Hearings . . . 1942*, pp. 34-38. The Northern Pacific gave up claims to 4,500,000 acres; the Southern Pacific to 2,000,000 acres, the Santa Fe to 1,600,000 acres. *Commercial and Financial Chronicle*, May 3, 1941, p. 2784.

[48] An able though partisan statement of these complexities is that by J. M. Souby. *House Hearings . . . 1942*, pp. 45-76.

agency suffers from a scarcity of skilled labor capable of auditing the vastly expanded amount of government purchases. The Office has fallen behind several years in its work. The possibility that the government will eventually demand refunds raises serious problems for railroad management. No doubt the railroads will contest in the courts rulings requiring them to return substantial sums.[49] That litigation may drag on for many years.

In 1942 sponsors of repeal made a determined effort to win Congressional approval. Joseph B. Eastman, who had assumed the duties of Director of the Office of Defense Transportation, again presented a strong case.[50] He complained that the land grant rates hampered the work of his office. First of all, shippers turned over the billing of goods to the government agency involved, such as the Quartermaster General's Office in the War Department. This procedure resulted in delays which ranged from four to ten days in the case of larger shipments. Furthermore, the government sometimes could not utilize the most expeditious service. Faced with the alternative of shipping by a circuitous rail route or by a shorter highway route, a government clerk had to choose the former if the rate were lower. Finally these rates served as a restriction on Eastman's power to divert traffic in the event that congestion forced him to allocate traffic. One further complication was the fact that the uncertainties connected with the land grant rates discouraged railroads from quoting low rates to the government under Section 22 of the Interstate Commerce Act.[51]

Witnesses appearing for the railroads and the Commission stressed the growing volume of government traffic. They argued that, since all shippers have to support the existing rate structure, favors to the largest shipper throw a greater burden on the other shippers. This last argument is rather questionable. If the land grant rates more than cover direct costs, they bring in additional revenues to the individual railroad. It is obvious, however, that government traffic would move at higher rates and that therefore the land grant rates do injure the industry as a whole.

The House Committee on Foreign and Domestic Commerce recommended the bill and had it placed on the calendar. But when it reached the floor, it ran into unexpected opposition. A letter from the Department of Agriculture was read to the House and touched off a warm debate.[52] The Department urged the roads to return their unsold lands to the United States before they were relieved of the land grant rates. Ownership by the railroad of odd land sections within the boundaries of the national forests complicated the task of forest administration. Friends of the bill found themselves hard pressed to explain why the government should pay more for transportation at a time when the railroads were enjoying great prosperity. An attempt to amend the bill with the purpose of recovering the unsold lands proved unsuccessful. The House sent the bill back to committee.

In 1944 the advocates of repeal again marshalled their forces. This time they won an overwhelming majority in the House, but they failed to get the measure before the Senate. In general, the arguments advanced before the House and Senate hearings were the same as those we have already examined. The rail-

[49] *House Reports*, 1408, 78 Cong., 2 sess., p. 7.

[50] *House Hearings . . . 1942*, pp. 1-16; *Railway Age*, March 28, 1942, pp. 667-668.

[51] See testimony of G. Lloyd Wilson of the Office of Defense Transportation, *House Hearings . . . 1942*, pp. 84-89. Mr. Wilson has an able article on this subject entitled "Railroad Land-grant Rates," *Journal of Business*, July 1942, pp. 266-278.

[52] *Cong. Record*, 77 Cong., 2 sess., pp. 3789-3790.

roads had to shift ground somewhat on the financial issue. No longer could they plead inadequate earnings, for railroad revenues had reached an all-time high. But operating costs and taxes had climbed at an even more rapid pace. For example, net income after charges fell from $902,000,000 in 1942 to an estimated $640,000,000 in 1944.[53] The Bureau of Transport Economics and Statistics of the Interstate Commerce Commission made an interesting study which concluded that, had the 1940 business of the railroads been done under 1944 conditions the net income of $188,000,000 would have been reduced to a deficit of more than $446,000,000.[54]

Other dangers becloud the financial horizon of the railroad industry. The sums in dispute between the General Accounting Office and the railroads are reaching formidable proportions. Estimates of this amount have reached $175,000,000,[55] and the prospect of perhaps having to pay substantial refunds two to five years after the war further alarms directors who anticipate a severe drop in earnings.[56] In the meantime the railroads are paying heavy taxes on the amounts which are in dispute. The railroads likewise anticipate a renewal of competition by water and highway carriers who will probably secure ample public aid in the form of work projects. The tremendous amount of surplus shipping will also take away traffic from the transcontinental lines once the Panama Canal is reopened to civilian use. The railroads have recently worn out equipment at a rapid rate; they have likewise been unable to hire enough labor to maintain their roadbeds at the highest state of efficiency. Directly after the war the carriers will have to spend a large part of their reserves to buy modern equipment and to put their working plant into good order. All these factors seem to indicate an uncertain if not gloomy future for the holders of railroad securities.

The Interstate Commerce Commission and the Board of Investigation and Research came to the support of the carriers in 1944. Their testimony reiterated the arguments already described above. They contended that the railroads had made more than adequate compensation for the land grants through rate concessions. Repeal would place the government upon the same basis as other shippers who are forced to shoulder more than their fair share of the burden. All shippers whether on land grant lines or not could compete for government business with more confidence. Repeal would eliminate costly delays and litigation over the computation of land grant rates. Moreover, the government would not lose much revenue because high excess profits taxes would siphon off much of the increased profits. In short, the elimination of these rates would expedite the administration of wartime transportation and cushion the carriers from the shock of the postwar decline in traffic.

Opposition centered in the executive departments. Those departments, notably the War and Navy departments, which benefited from the existing rates, opposed any change. James Forrestal, the Secretary of the Navy, joined Henry L. Stimson in opposition.[57] Forrestal estimated that full rates would add $80,000,000 to $90,000,000 a year to his transportation bill. The Treasury Department and the Budget Bureau took a similar stand against repeal.

[53] *Senate Hearings . . . 1944*, p. 114.
[54] Cited in *Senate Hearings . . . 1944*, pp. 116-117.
[55] *Ibid.*, p. 37.
[56] William Jeffers asserted that the Union Pacific has set aside a special reserve of $10,000,000 to take account of possible refunds totaling $23,000,000. *House Hearings . . . 1944*, p. 129.
[57] *Senate Hearings . . . 1944*, pp. 243, 120-121.

The Department of the Interior and the Department of Agriculture were likewise interested parties. These two departments could not resist the temptation to help block repeal unless the railroads would give up their unsold lands. The railroads still possessed approximately 16,000,000 acres, some of which was excellent timber land.[58] The following table reveals that four transcontinentals, which received approximately 75 per cent of the original acreage, retained substantial tracts in 1940.

Southern Pacific	8,044,476
Northern Pacific	4,819,732
Atchison, Topeka and Santa Fe	1,784,616
Union Pacific	923,239
All others	268,014
	15,840,077 acres

Some 3,000,000 acres lie within the exterior limits of the national forests, whereas most of the remainder is intermingled with public land in grazing areas. The checkerboard system of alternate sections seriously hampers and confuses the task of applying the proper methods of conservation and control. The existence of the odd-numbered sections prevents the effective utilization and development of the natural resources. The National Forest Service naturally looked with envious eyes upon the remaining holdings of the Northern Pacific Railroad.

Such a proposal, which seems on the surface an eminently satisfactory *quid pro quo*, would operate somewhat unevenly and perhaps unfairly. Those railroads which had sold off their lands would escape scot free; but those which retained ownership would sacrifice valuable assets. To be sure, most of these lands are not particularly valuable. Nevertheless they do have an estimated total value of $60,000,000.[59] The companies listed above would not consent to the transfer of these lands. Another difficulty lies in the fact that the lands of the Northern Pacific and a few other carriers are pledged under mortgages securing issues of long-term bonds. Release of these assets from the mortgage indenture would necessitate delays and considerable litigation.

To surmount these difficulties the House committee amended the Boren bill to the effect that the removal of land grant rates was not to become effective until 90 days after the date of enactment.[60] During this period the government presumably would save an amount equivalent to the value of the land. This interim period would also give both shipper and railroad a chance to adjust themselves to the new conditions. The Senate committee changed this amendment.[61] Carriers extending reduced rates were required to forward to the Comptroller General copies of their bills to agencies of the government. When the total of the deductions reached $68,272,770, the Comptroller was to notify the Interstate Commerce Commission which would proclaim the full commercial rates effective at once.

Some mention should be made of the group of land grant rate experts who work in the various government departments. At least one member from this group has testified against repeal at each hearing.[62] Their testimony has brought out much interesting information concerning the operation of the land grant and "equalization" rates. Of course, their opposition is not entirely unselfish. Their positions depend upon

[58] "Land Grants to Railroads and Related Rates," p. 69.

[59] *Ibid.*

[60] *House Reports*, no. 1408, 78 Cong., 2 sess.

[61] *Senate Reports*, no. 1208, 78 Cong., 2 sess.

[62] *House Hearings . . . 1938*, pp. 99-114. For similar testimony, see *House Hearings . . . 1944*, pp. 293ff., and *Senate Hearings . . . 1944*, pp. 137-155.

the continuation of rate deductions whose complexities they have a special skill in unraveling. Nevertheless their arguments deserve consideration.

They point out the contractual nature of the land grant acts. A contract is equally binding upon either party no matter how changed conditions have become. The carriers gladly entered the contract and did not cavil at its provisions as long as they received the greater benefits. Consequently they cannot complain if war traffic has more than redressed the balance. Furthermore Congress expected perpetual deductions when it made the grants. The fact that the railroads have built their lines is beside the point. That does not lessen the obligations incurred under the grants.

Moreover, repeal would injure those industries which have built up their markets on the basis of lower rates. Injuries to these industries would offset any benefits to shippers who do not enjoy land grant deductions. These experts minimized the complexities of administration, pointing out that the railroads had all the information they needed to estimate land grant rates immediately. The railroads' contention that refunds would bankrupt the companies after the war drew forth the counter charge that the roads have deliberately billed the government traffic at the highest charges in the hope that they would get past the auditing department. The charge that the government was not paying its fair share of the transportation bill brought forth a vigorous denial. The experts asserted that the tremendous volume enables the carriers to earn handsome profits on this business. Furthermore, much of the government traffic pays high class rates.

No doubt the railroads will intensify their campaign for repeal. Already the Interstate Commerce Commission has sounded the call for the end of these rates.[63] There should be little difficulty in securing House approval once more for the Boren bill. What the Senate will do is difficult to predict. Another hurdle to surmount is the attitude of the White House. Before the war the administration favored repeal in order to relieve the financial distress of the carriers. But the war has changed conditions drastically. The railroads are now making substantial profits; the government would have to pay another $200,000,000 a year if the land grant rates were eliminated. It seems more than likely that President Truman would follow the arguments of his War and Navy departments and veto any bill to repeal land grant rates.

The railroads will probably win their fight for repeal after the war. The decline in government traffic will not only cut the revenues and earnings of the carriers but it will make it easier for the government to give up its preferred position. Thus the last chapter in the history of land grants is yet to be written.

[63] *New York Times*, January 10, 1945.

A National Fuel Policy
III—Bituminous Coal: Postwar Prospects

By ROBERT M. WEIDENHAMMER*

Historical Setting

THEOPHRASTUS reported as early as 300 B. C. the use of coal for heating and smithing in Greece. Coal was mined in England at the time of the Roman invasion and early in the thirteenth century it was exported from Newcastle. On the North American continent, however, as long as the huge forest that covered the land east of the Mississippi provided all the wood and charcoal necessary for the limited needs of heating homes and smithing metals, little incentive existed for the early American settlers to look for fuel underground. The forests that covered the eastern states had to be cut to provide areas for agricultural purposes and wood as a fuel was an almost gratuitous by-product.

Only after the most conveniently located wood supplies had thus been exhausted did an incentive arise to look for coal deposits. The first record of commercial mining dates to about 1750, when an English company employing Negro slaves operated what today would be called a strip mine along the James River, near Richmond. The coal was quarried with pick and shovel like stone and loaded on boats going down the James and then up the coast to Baltimore, Philadelphia and New York. In 1760 the first outcrop mine in Pennsylvania, on Coal Hill across the Monongahela River from Fort Pitt, was found by British soldiers stationed at the fort.[1]

Since the continent's great waterways were so important in its exploration, it is not surprising that coal was first discovered and first mined along the James, Susquehanna, Monongahela, Ohio, Kentucky, Cumberland and Big Muddy rivers. Explorers saw the outcroppings on the bluffs, and "strip" mining and river transportation were then—as they are today—the most economical methods of mining and shipping coal.

Water transportation is still so important a factor in bringing coal to market that about a quarter of all the bituminous coal consumed in this country is moved either on the Great Lakes or on the coastal and inland waterways. Steel barges holding 1500-2000 tons apiece are lashed together—as many as nine at a time—in tandem and pushed (not *pulled*) by sternpaddle wheeled, shallow draft towboats.

The largest river movement of coal is on the Monongahela, which serves the rich Connellsville, Klondike and Pittsburgh seams of western Pennsylvania and the Fairmont field of northern West Virginia. The coal from many of the mines in this region is still loaded directly on barges which take most of their load to the industrial plants of the Pittsburgh area, while some of it goes on down the Ohio or up the Allegheny and the Youghiogheny rivers.

* Assistant Chief, Metals and Minerals Unit, Bureau of Foreign and Domestic Commerce. The opinions expressed by the author are his personal views and do not necessarily reflect the position of the Department of Commerce.

[1] The locations of these Richmond and Coal Hill mines are shown on contemporary maps that have been reproduced in Howard N. Eavenson's book, *The First Century and a Quarter of American Coal Industry*, where also can be found a copy of a map by the French explorer, Joliet, the oldest map of this country making any reference to coal. Joliet and his countryman, Marquette, the first white men to report about the coal seams of this continent, spotted the outcroppings of coal on their travels down the Mississippi and the Illinois Rivers in 1673. Joliet's map of the "Mitchisippi ou grande rivière" flowing into the "Golphe de Mexique" shows the location of "*charbon de terre*" along an unnamed river connecting the "Mitchisippi" with the "Lac de Michigan ou Illinois."

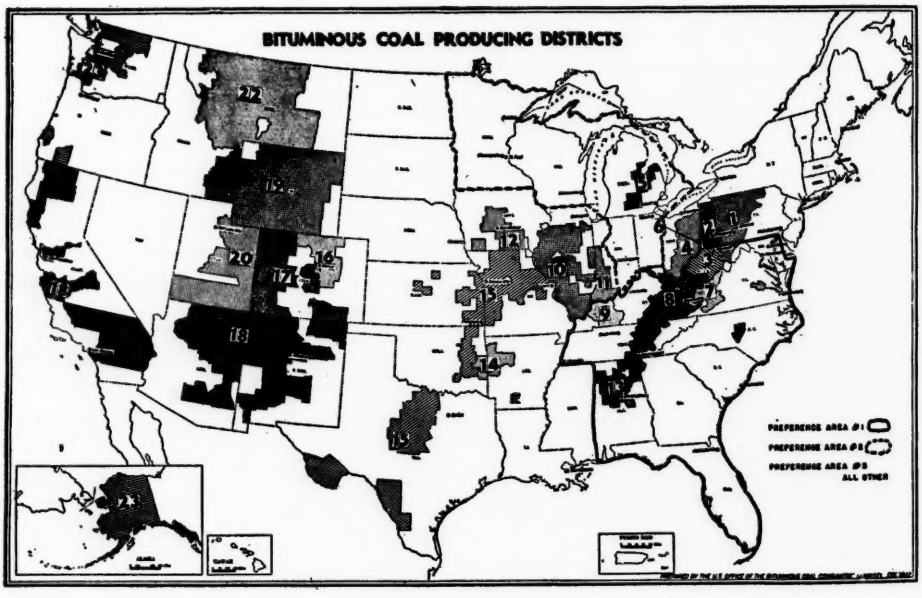
Before navigation on the Monongahela and the Ohio was improved by the federal government most of the coal movement was in the spring and fall when freshets raised the water level. Work in the mines along the rivers was seasonal and many miners took jobs on the coal boats. These boats were one-way craft which were broken up and sold for wood at their destination points on the Ohio or Mississippi. If New Orleans was the end of the journey, many of the miners found themselves jobs on ships going to Atlantic ports and then got back to their homes near Brownsville or Masontown by coach, horseback or shank's mare.

Next in importance in the river-shipping of coal was the Kanawha, down which coal was sent to Cincinnati as early as 1865, where it competed with coal coming down the Ohio from Pittsburgh. Among the other rivers used in shipping coal are the Ohio, the Illinois waterway, the Allegheny, the Muskingum, the Mississippi, the Tennessee, and the Black Warrior—listed according to the tonnage of their recent coal traffic.

While outcroppings on the banks had thus first shown the location of the seams, other outcrops were found in the woods and fields.[2] Commercial production for shipment, however, did not become feasible until canals and still later railroads were built to connect the coal fields with the eastern centers of population and industry.

The canals soon gave way to the "iron horse" because it was able to operate in winter—when the canals were frozen—and could even cross the mountains. Canal-boats from the East

[2] There is a legend that one night Lewis Wetzel, a famous Indian fighter and hunter, built a campfire along Dunkard Creek in the western Pennsylvania forest. Propping his kettle on some black "rocks," he settled down for the night only to be awakened by loud puffs of sulphur-smelling smoke coming from the flaming "rocks." What the frightened Wetzel was sure was the devil himself was, of course, nothing but bituminous coal which soon was to become a welcome source of fuel for the local settlers.



headed for Pittsburgh had to be hauled over inclined planes between Hollidaysburg and Johnstown, so it is little wonder that, in less than two decades, the railroad from Harrisburg to Pittsburgh was making the canal obsolete.

Contrary to some beliefs, the canal era which began in the 1820's was not launched to accommodate coal traffic. But to everyone's surprise coal soon proved to be the most valuable source of freight revenue. As soon as this was recognized, railroad builders began to go after the business and in turn developed rich coal fields until then untapped. In his book Eavenson presents a map of railroad systems, showing the right-of-ways built before 1840 and in each decade from 1840 to 1880, and another map giving mine locations in 1880. By comparing the mine locations with the date of building any portion of a railroad, the approximate time of the opening of any coal field can be recognized, as the mines were not opened before the railroads were built to them, except in a few cases where they were on the banks of navigable rivers or canals.

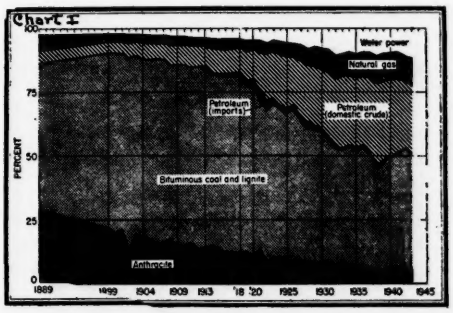
This meant, of course, that until about 1885 the location of a mine with respect to transportation was much more important than the thickness of the seams or the chemical analysis of the coal. Only after a network of railroads covered the eastern part of the country was mining concentrated in the best coal fields.

In spite of this somewhat haphazard manner of opening coal fields, it has been the location of the bituminous coal fields, especially the high grade Appalachian seams, that has shaped the geographical pattern of American industry.

The iron and steel industry was located where bituminous coal of metallurgical grade was readily accessible; subsequently the processing and manufacturing industries clustered around the steel-making centers. The growth of population and the development of transportation facilities followed. These in turn made industrial concentration permanent after it was once established. The so-called "manufacturing belt" contains only 9 per cent of the country's land area but 48 per cent of the population and 72 per cent of the value by manufacture. This zone is bordered on the north by Maine, southern New Hampshire, Massachusetts, the Great Lakes, Michigan and southern Wisconsin, and on the west and south by the Mississippi, the Ohio and the Potomac Rivers.

While it is true that the very recent development of natural gas pipe lines and of hydroelectric power has provided certain industries, such as aluminum, electric furnace steel, carbon black, synthetic rubber, glass and plastic, with locational advantages which the proximity of coal mines cannot match, the major outlines of the country's industrial pattern is not likely to be very materially changed. Natural gas may not last another thirty years while our coal reserve is adequate for perhaps a thousand years. Also, proximity to scrap and market outlets overbalances as locational factors the advantage of low cost of electric power used by electric steel furnaces.

Chart I shows the kinds of energy con-



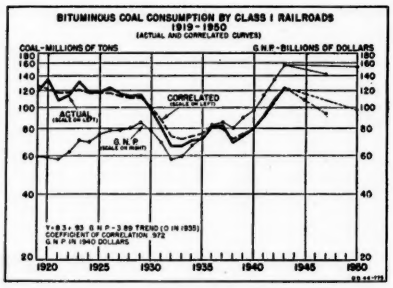


Chart IIa.

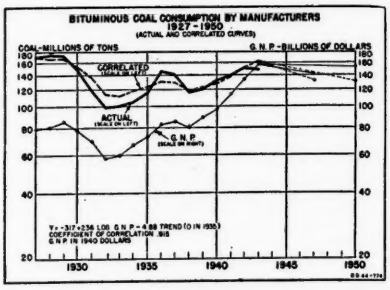


Chart IIb.

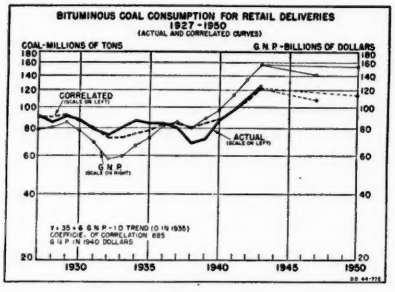


Chart IIc.

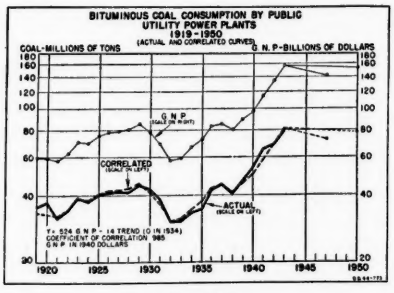


Chart IId.

sumed in the United States from 1889 to 1943. It is this encroachment of petroleum, natural gas and water power on coal between 1918 and 1943 in relation to the trend of the gross national product (see footnote 3) that is shown in Charts II, IIa, IIb, IIc, and IId. (For explanation and methods used in these charts, see footnote 3.) Bituminous coal in 1943 was used as follows:

Electric utilities	13%
Steel industry (coking)	19%
Retail dealers	21%
Railroads	22%
Manufacturing and others	25%

The greatest inroads made on coal as a source of energy have occurred in the field of transportation where the advantages of other fuels may overbalance the basic appeal of the low cost of coal. In the heating of homes the development of cheaper and better stokers may tend to check the recent rapid growth of the oil burner. The downward trend in the use of coal by public utilities was due more to the increase in thermal efficiency than to the competition of other fuels. From 1918-1943 the coal used in the development of one KWH was reduced from 4.50 pounds to 1.20 pounds.

In manufacturing, the use of fuels in 1939 compared as follows:

	Billions of B.T.U.'s	*Per Cent*
Bituminous coal	3,492,495	65.1
Natural gas	921,512	17.1
Fuel oil	841,974	15.7

As locomotive fuel, coal has fallen from 92 per cent of the B.T.U. equivalent in 1922 to 83 per cent in 1943; but the trend, unless shortly arrested or reversed, is now sharply in favor of the diesel locomotive rather than the steam engine, as shown in the following table which lists the number of locomotives, steam and diesel, bought by the American railroads each year since 1929.

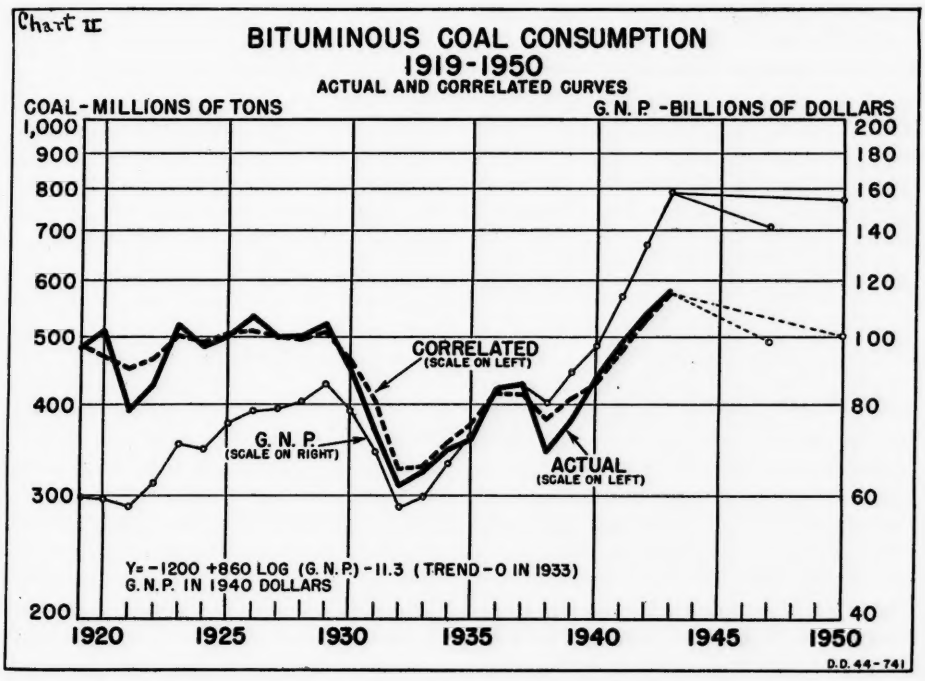
Year	*Steam*	*Diesel*
1944	326	918
1943	442	612
1942	363	894
1941	293	937
1940	207	492
1939	119	249
1938	36	160
1937	173	145
1936	435	77
1935	30	60
1934	72	37
1933	17	25
1932	5	7
1931	62	21
1930	382	18
1929	1,055	80

The prosperity that World War II has brought to the railroads and to the coal mining companies has enabled them to appropriate substantial amounts for research in the field of coal-using locomotives. As long as coal is the largest freight item of the railroads a strong common interest in defending the position of this fuel exists.

Technical Notes

There are really only two methods of mining coal, namely, stripping and underground mining. If the coal seam is very close to the soil surface, it is possible to remove the overburden and to load the coal just as stone is mined in quarries. If the overburden becomes too high, it not only becomes too expensive and even technically impossible to remove, but also the overburden becomes solid enough to permit the mining of coal without the acute danger of the "roof," that is, the overlaying strata, falling and filling up the mine.

While both of these methods have been used since time immemorial, it is only in the last half-century that coal mining has become highly mechanized opera-



tions and the often inhuman labor conditions in the mines have been alleviated. Today it seems fantastic that in England less than a hundred years ago women and children spent endless hours in the mines under conditions violating all our present conceptions of regard for safety and decent working conditions. Contemporary illustrations better than words can describe the incredibly sordid and dangerous jobs that poorly-paid children and girls had in English coal mines in the 1840's. These small-bodied persons were in great demand for mining the narrow English coal seams (only 16 to 30 inches high).

Similar conditions on the Continent have been immortalized in Emile Zola's *Germinal*—the sordid tale of teen-age boys and girls working together in an atmosphere of moral and physical disintegration, to which the ever-present mining hazards of gas explosions, floods and roof cave-ins were but the final violent climax.

The technique of mining was simple enough. Once the solid rock had been cut through and the coal seam reached, the coal was undercut by hand with a pick. The coal then either fell down because of its own weight (and the miner prayed that this would not happen while he was still under it) or it had to be brought down by "shooting the coal" with small powder charges.

For centuries the ways of mining changed little, the pick and shovel, and the mine car drawn by horse or mule, or just human beings, being the implements of the trade. The first step in the mechanization of coal mining was the introduction of coal-cutting machines to replace the arduous and dangerous job of undercutting the coal seam by hand. The first such machine is reported to have been used in England as early as 1761, but it was not until the beginning of the twentieth century that the use of undercutting machines became significant. By then some 25 per cent of the bituminous coal in the country was mechanically cut, compared with only 1.5 per cent in Great Britain. Today over 90 per cent of all coal in this country and about 80 per cent of the coal in the United Kingdom are cut by machines.

The modern cutting machines have a bar around which travels an endless chain, to which large alloy-steel-cutting teeth are attached. These teeth undercut the coal horizontally and sometimes vertically, thus preparing it for loading. Naturally, the thicker the seams, the more efficient are these machines, as well as all other mechanical mining operations, and therein lies the major reason for the much greater progress in mechanized mining in this country as compared with European countries, where the coal seams are usually much thinner.

The real pioneers of mechanical loading were two Americans, W. A. Hamilton and Joseph F. Joy. Both suffered the heartbreaks and disappointments that come so often to men whose vision is far ahead of that of their contemporaries. Hamilton constructed the first loading machine shortly after the turn of the century. This "monster," as it was regarded by the miners, was equipped with a boom or jib in front which gathered and elevated the coal lumps and discharged them into a swinging conveyor, which in turn loaded the coal into the mine car on the track. One of the earliest machines was sold in 1901 to the St. Louis & Big Muddy Coal Company in the southern Illinois field, with a guaranteed production of 80 tons per day. The machine greatly exceeded this guaranteed performance and the Zeigler Coal Co., it is reported, ordered ten of them for $2,000 apiece. The machines loaded better than 150 tons a day.

However, the blame for an explosion in the mine was put on the unfamiliar "monster" and the miners demanded that their pay, on a tonnage basis, should remain on the old hand-loading scale. To achieve this demand the miners went on strike for over a year, until the management accepted their prejudices and agreed to discard the "monsters."

Mechanical loading was thus delayed by nearly 30 years but better models introduced late in the twenties finally found acceptance. In recent years the United Mine Workers Union has not fought the mechanization of mining operations, even if it meant unemployment. The union felt that it could not stem the tide of either technological progress or competition from other fuels. As a matter of fact, the union's leadership realized that to stem the latter, mechanization had to be adopted.

Institutional Notes

Many pertinent institutional facts regarding the industry are not readily available. The following notes attempt to remove some blind spots that appear to exist in many discussions of the industry. All figures, unless otherwise noted, are for the year 1943.

The strongest single political and probably economic force in the coal industry is the United Mine Workers of America. Some 400,000 bituminous coal miners and some 70,000 anthracite miners put a dollar a month into the union treasury. None of the operators has as much cash income as the union does and, furthermore, the producers do not see eye to eye on many problems. Thus, during the hearings before the Ways and Means Committee of the House regarding the extention of the Guffey Act (June 21—July 5, 1943), the high-cost producers sided with labor in favor of the extension while the low-cost producers sided with the consumers.

In 1943 there were 6,620 mines producing a total of 589 million tons, of which some 70 million tons were stripped. The following tables list in order of tonnage produced, the twenty largest captive mining companies, the twenty largest commercial producers and the nine largest strippers. From the tabulations it appears that, during 1943, 49 producers (not the 49 largest ones, but the largest in the three groups) produced 244 million tons out of a total of 589 million tons.

TABLE I. BITUMINOUS COAL PRODUCERS: OUTPUT IN TONS FOR YEAR 1943 OF TWENTY LARGEST CAPTIVE MINING COMPANIES

(*000 omitted*)

Company	*Tons*
U. S. Steel	29,524
Bethlehem	8,439
Union Pacific R. R.	6,136
Republic Steel	5,062
Jones & Laughlin	3,703
Chicago N. W. R. R.	3,411
Northern Pacific R. R.	3,119
Youngstown Sheet & Tube	3,013
Colorado Fuel & Iron	2,178
Duquesne Light & Power	1,981
C. B. & Q. R. R.	1,857
N. Y. Central R. R.	1,777
Weirton Steel	1,728
Inland Steel	1,728
Canadian Nat'l R. R.	1,600
Goodyear Tire & Rubber	1,229
Crucible Steel	1,159
Norfolk & Western R. R.	1,115
Sloss-Sheffield Steel	1,078
American Rolling Mills	1,070
Total	80,907

The only available breakdown of 1943 production by tonnage mined by financially affiliated groups of mining companies was published in the October 1944 number of the *Keystone Coal Buyers' Manual*. Unfortunately, bituminous coal and anthracite are not separated.

(Anthracite production in 1943 was 60 million tons.)

TABLE II. BITUMINOUS COAL PRODUCERS: OUTPUT IN TONS FOR YEAR 1943 OF TWENTY LARGEST COMMERCIAL MINING COMPANIES

(*000 omitted*)

Company	*Tons*
Peabody	14,677
Koppers	13,758
Island Creek	11,180
Consolidation	10,213
Pittsburgh Coal	9,951
Pocahontas Fuel	8,161
Berwind-White	7,493
Rochester & Pittsburgh	6,657
Old Ben	5,671
Chicago, Wilmington & Franklin	5,501
Hanna	5,392
Westmoreland	4,903
Hillman Group	4,836
Christopher Group	4,407
Youghiogheny & Ohio	4,373
Jamison Coal & Coke	4,236
Blue Diamond	4,242
New River	4,218
Valley Camp	3,921
Bell & Zoller	3,872
Total	137,662

From the breakdown in Table IV it appears that forty groups, operating ninety-seven companies produced 41 per cent of the total output.

Mining Machinery Manufacturers. The bituminous coal industry spends annually approximately 20 cents per ton mined on mining equipment and supplies, such as explosives, drills, hoists, cable, track, cutters, loaders, fans and lamps. Among the major companies specializing in coal mining equipment are Goodman, Jeffrey, Joy and Sullivan. Stripping shovels are made by Bucyrus-Erie, Marion, Thew, Harnischfeger and others.

Coal Retailers. There are some 55,000 coal retailers in the country.

Coal Stoker Manufacturers. Over 200 companies supplied the peacetime market of less than 200,000 units a year, at a total price of $25,000,000. But over 75 per cent of the output was by 8 manufacturers, of which the Iron Fireman Co. was the largest. So far about one

TABLE III. BITUMINOUS COAL PRODUCERS: OUTPUT IN TONS FOR YEAR 1943 OF NINE LARGEST STRIPPING COMPANIES

(*000 omitted*)

Company	*Tons*
Northern Illinois	3,865
Sinclair	3,416
Ayrshire Collieries	3,175
Truax-Traer	3,170
United Electric	3,032
Midland Electric	2,894
Binkley	2,568
Maumee Collieries	1,565
Enos	1,420
Total	25,105

TABLE IV. 1943 COAL PRODUCTION IN THE UNITED STATES BY COMPANIES AND FINANCIALLY AFFILIATED GROUPS

Class	Tonnage range	Groups	Total	No. of Cos.	Cum. Total	1943 Tonnage	Cum. Total	% of Total Produced
1	3,000,000 and over	44		97		267,354,014		41
2	2,000,000 to 2,999,999	18	62	41	138	43,473,568	310,827,582	47
3	1,000,000 to 1,999,999	66	128	134	272	94,574,056	405,401,638	62
4	700,000 to 999,999	49	177	68	340	40,569,221	445,970,859	68
5	500,000 to 699,999	45	222	68	408	25,985,803	471,956,662	72
6	400,000 to 499,999	53	274	67	475	25,106,638	497,063,300	76
7	300,000 to 399,999	60	335	67	542	20,476,209	517,539,509	79
8	200,000 to 299,999	104	439	109	651	25,754,605	543,294,114	83
9	100,000 to 199,999	225	664	231	882	32,235,457	575,529,571	88
*10	50,000 to 99,999			476	1358	32,953,439	608,483,010	93
*11	1,000 to 49,999			2324	3682	39,443,695	647,926,705	99.6
*12	Below 1,000			3697	7379	1,400,295	649,327,000	100

* Estimated.

million stoker installations have been made. (In comparison, the peacetime annual output of oil burners was 335,000 at a price likewise of $25,000,000, or at a considerably lower cost per unit.)

Federal Regulation

Between 1913 and 1935 Congress conducted no less than 19 investigations into conditions in the bituminous coal industry. As a result of World War I the first federal regulation was enacted, the Lever Act of 1917, which gave the government the power of fixing prices and controlling distribution. This Act provided that each mine was to ship its output within designated zones, except under special permits. The purpose of the zoning provisions was to prevent crosshauling and to make the most efficient use of the railroads for war traffic.

The next four periods of federal control were the result of strikes in either the coal industry or the railroad service, the last occurring in 1932. The fifth period of federal control came with the National Industrial Recovery Act of 1933, which was operative from October 2, 1933 to May 27, 1935.

Under N.R.A., wages were increased, hours reduced and minimum prices were set. While the price-fixing was done hastily and was never fully enforced against the "chiselers," certain definite economic trends resulted. The United Mine Workers Union was greatly strengthened. The Northern producers regained some of the markets lost previously to the non-unionized mines of the South, and the opening of small, high-cost wagon mines was encouraged by the umbrella of minimum prices.

After the Schechter decision of May 1935 nullified N.R.A., hearings were at once started in the House and the Senate as a prelude to passage of legislation to regulate bituminous coal that would meet the test of constitutionality. But even the revised law, the Guffey Act, was squeezed through the House on August 19 with a vote of only 195 to 168 and by the Senate on August 22 with a vote of 45 to 37. The President finally signed the bill on August 30, 1935.

The Guffey Act declared that bituminous coal was affected with a national public interest and that the welfare of the nation required that the bituminous coal industry be regulated. It further stated that the production of bituminous coal and its distribution "bear upon and directly affect" interstate commerce.

A National Bituminous Coal Commission of five members was appointed by the President, as was also a Consumers' Council and a three-member Bituminous Coal Labor Board. The labor provisions of the Act were held unconstitutional in the Carter case decision handed down on May 18, 1936. Senator Guffey then introduced in the Senate, and Representative Vinson in the House, a new bill minus the unconstitutional labor provisions, but Congress adjourned on June 20 before taking action. It was not until April 12, 1937 that the House passed the Guffey-Vinson bill, which was to be administered by a commission of seven members. This commission was placed in the Department of the Interior, but was independent of it. On May 9, 1939 the President, through Reorganization Plan No. II, abolished the commission and transferred its functions to the Secretary of the Interior who in turn established the Bituminous Coal Division to carry out the functions of the Coal Act, and to be set up in his department, because "direct administration will be cheaper, better, and more effective than through

the cumbersome medium of an unnecessary commission."

When the Act expired on April 26, 1941, the Congress extended it for another two years, and on April 26, 1943, for another three months. Hearings on the further extension of the Act of 1937 were held from June 21 to July 5, 1943, but the Congress finally decided against renewal, thus indicating its belief that the country for the time being would be better off without it. During the months preceding the demise of the Guffey Act, the United Mine Workers sponsored a bill to restore an independent commission of three members, one to represent the operator, one the miners and one the public. This effort at continuing regulation proved unsuccessful. Congress evidently felt that the Guffey Act by its inability to prevent strikes had failed in one of its main objectives. The public did not support the bill because public opinion was aroused against the union by the strikes in the spring of 1943. Consumers were against the bill and the producers were split, the lowest-cost producers being opposed to it. In 1944, however, the vote of the country's half-million coal miners was considered so important that both parties pledged themselves to a national policy designed to safeguard the interests of the bituminous coal industry.

Wartime Regulation. The purpose of wartime control of coal was to satisfy the growing demands of the war economy. The job was given to the Solid Fuels Administration for War which, after the expiration of the Guffey Act, took over most of the personnel of that extinct agency.

While the War Production Board, through its Controlled Materials Plan, curtailed non-essential industrial operation, the task of S.F.A.W. was to increase production and to direct distribution rather than to restrict consumption of coal.

Between 1938 and 1944 production was increased as follows:

	Bituminous Coal (Mill. tons)	*Percentage Increase*	*Anthracite Coal (Mill. tons)*	*Percentage Increase*
1938.....	349		45	
1944.....	620	78%	64	42%

During this period bituminous coal production per man-day rose from 4.89 tons to 5.38 tons or 10 per cent; and per man-year, from 790 tons to 1,419 tons. Working hours increased 37 per cent as the work day was lengthened from 7 hours at the face to 9 hours portal-to-portal, or an increase in working time at the face from three-quarters to an hour. The work week was extended from 5 days to 6 days.

Since the S.F.A.W. could directly contribute relatively little to the increase in output, it had to concentrate its efforts on the regulation of distribution. While the over-all supply of coal that could be produced in a calendar year might be sufficient for all demands, two factors that normally are left to the price-making process in a free market had to be given attention: (1) the seasonal slack in production had to be minimized; and (2) the market preference for the higher grade coals had to be curbed.

To minimize seasonal slack the S.F.A.W. has relied upon appeals to the self-interest of the consumer. To curb the market preference for the best grades of coal, it was necessary to restrict consumers to seven-eighths of their normal requirements, deducting the inventories held at the beginning of the fuel year from seven-eighths of their annual normal requirements. However, consumers were permitted to buy inferior grades up to 100 per cent of their coal requirements. This restriction was

imposed on anthracite and prepared bituminous coal from districts 7 and 8 only (see Map) and consumers were free to substitute either high volatile double-screened bituminous coals or low volatile run-of-mine coals. In the Middle West coal from Ohio, Indiana and Illinois has thus replaced coal from the Appalachian seams, especially from districts 7 and 8 (see Map). The producers in these two districts now are required to supply 90 per cent of normal deliveries to coal dealers in Preference Area 1 before selling to any other retail dealers; then to provide, if possible, up to 90 per cent of the requirements of dealers in Preference Area 2, and then to prorate any remainder among dealers in Area 3. The reason for these provisions is that Preference Area 1 has no alternative supply of coal (though it may have wood, fuel oil or natural gas), while Area 2 has access to some other coal, and Area 3 has a liberal supply of other coals.

As a whole, the record of the American coal industry during the war has been excellent, especially if compared with the British performance. The coal shortages of January 1945 were due to transportation tie-ups rather than to the inability of the mines to produce. The demands of the winter 1945-46 will strain the capacity of the mines, but the goal can be obtained if three conditions are met during 1945: (1) if consumers buy during the slack summer season so as to keep the mines at an all-year-round use of capacity; (2) if the number of miners is not further reduced by inductions into the armed services; and (3) if no strikes occur.

Postwar Outlook

When World War II is over, will the bituminous coal industry slide back into a period of deficit operations which characterized the years 1925-1939? (See Chart III.) Will demand resume the downward trend which began in 1925 and continued to 1938? If so, would re-enactment of the Guffey Act be advisable? Would its minimum price provisions have been effective had they been operative during the 1925-1938 period when the volume of consumption was declining, rather than in 1939 when it was rising?

Many mine operators who went through the discouraging experience of the lean years between the two world wars are frankly concerned lest the return of peace mean only the resumption of the inroads by competitive fuels. They look with misgivings at the increase in output from 345 to 620 million tons between 1938 and 1944 as presaging only renewed trouble. They recall that the increase in capacity between 1917 and 1923 brought 15 years of operating losses before surplus capacity was once more in balance with shrinking consumption.

As Chart III indicates, the capacity of all bituminous mines, assuming 261

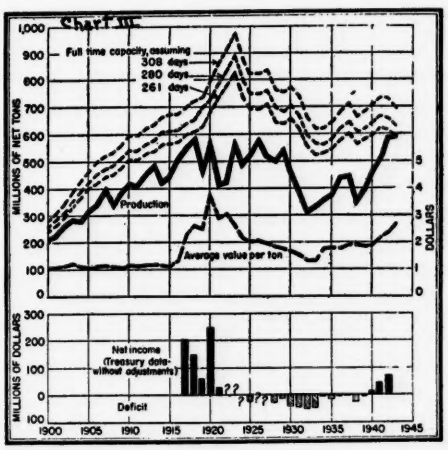


CHART III. TRENDS OF BITUMINOUS COAL AND LIGNITE PRODUCTION, REALIZATION, MINE CAPACITY, AND NET INCOME OR DEFICIT
(United States, 1900-1943)

working days, greatly exceeded the country's demand between 1922 and 1943. As a matter of fact it was only in 1943 that the lines for production and capacity met for the first time with balance achieved at a level just under 600 million tons. That the economic concept of capacity is a very flexible one is evidenced by the fact that 400,000 miners (having lost 80,000 to the armed forces) working overtime produced 620 million tons in 1944.

The number of veterans desiring to return to the mines may not greatly exceed the number of over-age miners ready to retire after the war. If in the postwar period, the industry should operate on a 7-hour portal-to-portal shift, production per man-day might not exceed 5 tons. If the number of work days should be reduced to 250 (50 weeks of 5 days each), then output would be sufficient for the indicated demand of 500 million tons only if work were to go on at an even rate throughout the year. As long as coal production precedes consumption in a decided seasonal trend (as shown in Chart IV) annual capacity must exceed annual demand by a considerable margin to prevent the exhaustion of stockpiles in the late winter. It is to be hoped, however, that consumer-buying during the slack season which has been practiced during the war will be continued in the postwar period as a national habit.

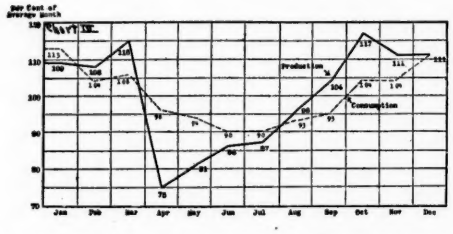


CHART IV. SEASONAL VARIATION: BITUMINOUS COAL PRODUCTION AND CONSUMPTION

(Computed by Dun & Bradstreet, Inc., from statistics in "Survey of Current Business," Department of Commerce; period covered: production, 1930-1940; consumption, 1932-1940.)

Meanwhile, World War II has put in motion, or at least has accentuated, certain trends affecting the postwar status of the bituminous coal industry. The following are some of the unfavorable influences now in evidence:

(1) Diesel locomotives are rapidly replacing steam locomotives.

(2) Air traffic will further cut into railroad traffic.

(3) Natural gas pipe lines are still being built, entering new markets heretofore served by coal. A possible conversion of the two DPC "Big Inch" pipe lines to the transport of natural gas from Texas to the NewYork-New Jersey-Philadelphia area would be a distinct threat to the coal producers now serving this market.

(4) If inexpensive houses should be sold in great numbers on a strictly low price appeal, coal stokers might be unable to compete with the cheaper *first cost* oil burner installations.

(5) The constant progress in mechanization, especially in mechanical loading, may have greatly increased the capacity of the mines, a fact now hidden because of labor shortages.

Against these gloomy prospects the following favorable trends can be discerned:

(1) The increase in the thermal efficiency in the use of coal, which between 1918 and 1943 decreased from 4.5 pounds to 1.2 pounds the quantity of coal needed to generate one KWH, has nearly reached its limits in the public utility field. In other coal markets, such as locomotive, industrial and home, much further progress is indicated, but the decrease in the demand for coal which will result may find its compensation in the recapture of markets now lost to competing fuels.

(2) The progress being made in the mechanization of the mines may reduce the cost of production and enable the industry to compete more successfully with other fuels. Whether such gains can be held depends, however, on whether labor costs will rise so as to undo any savings from mechanization.

(3) Meanwhile, recent technological developments, such as catalytic cracking will tend to decrease the quantity and quality of fuel oil coming on the market.

(4) The most important favorable factor, however, is the expected large increase in Gross National Product, in the postwar period over the prewar period, and the fact that the consumption of coal still depends primarily on the level of GNP.

These conflicting trends preclude any definite prognostication. But, on balance, the writer leans toward a reasonably favorable interpretation.[3] In considering the role of bituminous coal in a long-range national fuel policy, two extreme cases may first be considered. If at the end of the war the demand for coal should continue to exceed supply, the coal industry would not need the minimum price regulation of the prewar period. On the other hand, if competing fuels and new sources of energy (solar or atomic) should threaten to replace coal permanently, then government should render assistance only in the orderly self-liquidation of the coal industry.

A definite case for a national fuel policy can be made, however, if in the postwar period the *short-term* trend should threaten to throw the coal industry back into chaos, due to a *short-term* oversupply of oil and natural gas. The nation cannot afford to have its coal industry ruined if conditions indicate that some ten or fifteen years later it may be threatened with the exhaustion of certain other sources of energy. Should the price-making process in the free market fail to conserve oil and natural gas for the higher grade uses (motor fuel rather than heating), then a national interest would exist to enforce the conservation of these higher-grade (and soon to be exhausted) hydrocarbons. The national interest would also demand measures to maintain solvent a coal industry that might, not many years later, be called upon to bear the chief burden of providing our primary source of fuel and energy.

As a fourth alternative we might visualize a postwar Gross National Product of an order of magnitude that would keep the demand for coal and the output of the mines in balance. Continued profitable operation for the more efficient mines would then be assured, and no need for federal regulation of the price-making process in the bituminous coal industry would exist.

[3] If the composite "guestimate" of government economists should come true that GNP in 1950 will be at a level of about 154 billion dollars, (in 1940 dollars), then a demand for bituminous coal in the order of 500 million tons can be predicted on the basis of regression correlation of GNP and coal consumption between 1919-1943. For statistical documentation, see the writer's "Coal Consumption Depends on GNP," *Mechanization*, February 1945.

Postwar Farm Land Values?

By MARK M. REGAN and FRED A. CLARENBACH*

THE price of farm land has risen, on the average, 50 per cent in the last four years. South Carolina and Colorado report state-average increases of more than 70 per cent. Rises in excess of 60 per cent have occurred in Indiana, Kentucky, North Carolina, Arkansas, Idaho, and Wyoming. Even such recurrently droughty states as South Dakota, Nebraska and Kansas show increases well in excess of the national average for the 4 years. The land price curve, moreover, continues to mount at about 1 per cent a month.

This is inflation. But is it "justifiable inflation" in view of present and prospective returns to owners of farm land? What are land values likely to be in the postwar period?

Current farm incomes and land returns are high in relation to land prices in practically all areas, despite the great upsurge of land prices. Cash income from farm marketings in 1944 was more than $20 billions, about 2½ times the 1940 level. The ratio of net rent to land value has risen from slightly more than 5 per cent to almost 10 per cent. But what of prospective farm income and land returns and the translation of the latter into land values?

Basic uncertainties—including those of postwar price levels and the effects of government programs upon the volume of agricultural production and upon the relation of prices paid to prices received—obviously make impossible any forecasting of postwar land values. What follows here is primarily an attempt to indicate probable justifiable postwar levels of land values under various combinations of assumptions respecting several of the more important factors in the problem. In order to provide a "time-anchor" for the data and also to utilize conveniently certain other relevant estimates, the year 1950 is assumed to represent a "normal postwar year."

Basic Assumptions

In different combinations with other elements, three of the many possible

* Agricultural Economists, Bureau of Agricultural Economics, United States Department of Agriculture.

TABLE I. PRICE LEVEL INDICATORS
(1935–39 = 100)

Year	Wholesale Prices[1]			Prices Paid by Farmers (commodities, interest and taxes)[2]	Prices Received by Farmers[2]
	All Commodities	Farm Products	Commodities other than Farm Products and Food		
1940	98	89	102	98	93
1941	108	108	110	103	116
1942	123	139	118	117	149
1943	128	161	119	127	179
1944	129	162	121	133	182
1945[3]	131	171	123	135	192

[1] Bureau of Labor Statistics series (1926=100) reduced to 1935-39 base.
[2] Bureau of Agricultural Economics series (1910-14 = 100) converted to a 1935-39 base.
[3] June 1945.

price levels that might obtain in 1950 are hypothesized: the 1935-39 average, 1942, and 1944. The relations of these levels to those of other recent years are indicated by the several index series in Table I. (*Prices paid by farmers* were used in actual computations.) The choice of 1935-39, 1942, and 1944 reflects a view that a "normal postwar price level" is not likely to be under that of 1935-39 nor above 1944 if economic stabilization policies are reasonably successful.

Almost regardless of price levels, there will be strong pressures operating to maintain the present high level of agricultural production or even to increase it—although the composition of the total farm output is likely to be substantially altered. Further mechanization, better control of pests and disease, improved plant varieties, more fertilizer and lime, better feeding and care of livestock, and similar technological changes are powerful elements indicating increased production in the early postwar years. Assuming conditions of prosperity and normal weather, Sherman Johnson has estimated that farm output in 1950 could be 145 per cent of 1935-39. (Output in 1944 was 33 per cent above 1935-39, with better weather but 8 per cent fewer farm workers.) Even under depression conditions, Johnson concludes, "it seems safe to assume that our level of output . . . would be about 135 per cent of the 1935-39 average."[1] Some other estimates, however, place probable output far lower. In order to demonstrate here the effect of varying output over a wide range, in different combinations with other factors, three production levels for 1950 are used: 1935-39 and 125 and 145 per cent of 1935-39.

The relation of agricultural prices to other prices will be determined by many factors, the precise nature and relative weights of which cannot now be adequately assessed. Governmental price-support and production-control measures are unpredictable; but it is almost obviously improbable that high over-all farm output (e.g., 145 per cent of 1935-39) would be long compatible with high farm commodity prices. Substantial "artificial" restriction of total agricultural output could be accomplished, if at all, only at great cost and difficulty. Bushrod W. Allin estimates that with full employment and a publicly-financed nutritional program for low-income people (*and parity prices*), "it would still be necessary to reduce the total area of cropland by 17 million acres."[2] However, an increase of several million acres in total cropland seems more probable than does any substantial decrease.[3]

If such estimates are correct, a parity price average in 1950 is distinctly improbable. In fact, as O. V. Wells has pointed out, the task under the "Steagall Amendment" and related acts (of supporting prices of various farm commodities which account for only about two-thirds of cash farm income, at not less than 85, 90, and 92½ per cent of parity for 2 to 3 years after hostilities cease) "is a far more difficult assignment than anything contemplated in the Agricultural Marketing Act of 1929 or the Agricultural Adjustment Act of 1933."[4] The maximum parity ratio that it now seems reasonable to expect for 1950 is about 90 per cent, and it would

[1] "Production Adjustments—1945 and Postwar" (address at 22nd Annual Agricultural Outlook Conference, Washington, D. C., Nov. 14, 1944, mimeo.), p. 12.

[2] "Agriculture and Full Employment" (a statement from the Department of Agriculture Interbureau Committee on Postwar Programs submitted to the House Special Committee on Economic Policy and Planning, Washington, D. C., August 23, 1944, mimeo.), p. 3. An apparently liberal allowance is made for exports.

[3] Cf., Johnson, *loc. cit.*, p. 11.

[4] "Agricultural Prices: A Look Ahead," *The Agricultural Situation*, (Vol. 28, No. 9, Sept. 1944), p. 9.

appear that a lower ratio is more probable. Accordingly, for the following analysis 90, 80 and 66 per cent are the parity ratios selected. The third is the lowest 5-year average ratio—for 1930-34. The lowest parity ratio for a single year was 55, in 1932.

The combinations of assumptions that

TABLE II. "POSTWAR WARRANTED LAND VALUES:" HYPOTHETICAL LEVELS OF UNITED STATES AVERAGE VALUE OF LAND IN FARMS ON BASIS OF INDICATED ASSUMPTIONS[1]

Hypothesis No.	Assumptions for 1950			Cash Income from Farm Marketings		Land Value 1935–39 = 100
	Prices Received by Farmers		Production 1935–39 = 100	1935–39 = 100	Amount	
	Ratio to Parity Prices in Period Indicated	1935–39 = 100				
	Per cent	Per cent	Per cent	Per cent	Mil. dol.	Per cent
1	66—1935–39	79	100	79	6,299	71
2	66—1935–39	79	125	99	7,893	89
3	66—1935–39	79	145	115	9,169	103
4	80—1935–39	95	100	95	7,574	85
5	80—1935–39	95	125	119	9,488	106
6	80—1935–39	95	145	138	11,003	123
7	90—1935–39	107	100	107	8,531	96
8	90—1935–39	107	125	134	10,684	120
9	90—1935–39	107	145	155	12,358	139
10	66—1942	93	100	93	7,415	83
11	66—1942	93	125	116	9,249	104
12	66—1942	93	145	135	10,764	121
13	80—1942	112	100	112	8,930	100
14	80—1942	112	125	140	11,162	125
15	80—1942	112	145	162	12,916	145
16	90—1942	126	100	126	10,046	113
17	90—1942	126	125	158	12,597	141
18	90—1942	126	145	183	14,591	164
19	66—1944	105	100	105	8,372	94
20	66—1944	105	125	131	10,445	117
21	66—1944	105	145	152	12,119	136
22	80—1944	127	100	127	10,126	114
23	80—1944	127	125	159	12,677	142
24	80—1944	127	145	184	14,670	165
25	90—1944	143	100	143	11,401	128
26	90—1944	143	125	179	14,272	160
27	90—1944	143	145	207	16,504	185

[1] The "anchor-year" 1950 is assumed to be a "postwar normal year." See text for other assumptions and explanation of method.

make up the separate hypotheses are set forth in Table II, along with the results of computations utilizing the basic assumed data.

Method of Computation

A brief statement of methods used is appropriate before proceeding to a discussion of the results. (1) The index numbers of cash income from farm marketings were obtained by multiplying the index numbers of production by those of prices received. (2) Dollar amounts of cash income are the products of the 1935-39 average ($7,973 million) and the index numbers. (3) The average ratio of estimated net land returns to cash farm income for the years 1935-39 (21 per cent) was applied to the cash farm income amounts to obtain net rent figures. (4) These net rents were capitalized at the 1912-45 average ratio of net rent to value in the succeeding March (5.5 per cent) to obtain total values of farm real estate. (5) Total values were converted to index numbers by dividing by the 1935-39 average of the regularly published estimates of actual total values.[5]

Results

The resulting indexes of land values for 1950, under the 27 different hypotheses, range from 71 to 185 (1935-39 = 100), as compared with 152 on March 1, 1945 (Fig. 1). Several instructive points from Table II may be noted. First, at 1935-39 production the warranted value index would in no case approach 152; it would stand as high as 128 only on the assumption of a 1944 general price level and a parity ratio of 90 per cent. Even at parity, the value index would be about 10 points under the 1945 figure.

Second, 139 is the high index on the assumption of a 1935-39 price level. Thus in no case would warranted 1950 land values equal the 1945 values if the price level were relatively low.

Third, even the 1942 price level assumptions, with one exception, point to land values lower than 152. The exception is the hypothesis of 90 per cent of parity and production at 145 per cent of 1935-39, yielding a value index of 164.

Finally, only 3 of the 9 hypotheses involving a 1944 price level indicate value indexes above 152; and only the rather unlikely combination of 90 per cent of parity and 145 per cent of 1935-39 production is markedly above the March 1945 index.

If the 1942 level of prices paid is regarded as the level most likely to be "postwar normal," and if the higher production levels and lower parity ratios are deemed more probable, then the range of land values would extend from 104 (production 125, parity ratio 66) to 145 (production 145, parity ratio 80). The intermediate value levels would be 121 (production 145, parity ratio 66) and 125 (production 125, parity ratio 80). These latter levels are exceeded by

[5] At least three features of this procedure require some comment. (a) The ratio of net rent to cash farm income probably will tend to decline somewhat as a result of improved technology rendering land a less scarce factor of production and also as a result of prospective shifts toward relatively greater production of livestock and livestock products. Hence, the use of the 1935-39 average ratio, without adjustment, probably leads to some overstatement of the level of land values that could be maintained under the various hypotheses.
(b) Bringing new lands into production will tend to reduce the average per acre value of farm real estate, under the output assumptions made here. The neglect of any adjustment for this factor thus also means some overstatement of the level of land values that could be maintained under the various hypotheses. Those readers who might be inclined to regard some of the authors' emphases as "too pessimistic" may want to estimate the degree of "over-optimism" involved in the hypothetical warranted land values arrived at by this procedure. (c) The capitalization rate of 5.5 per cent would appear to be a reasonable rate to use in making estimates of this nature. There are several well-known reasons for considering past rates generally "too low." If interest rates should be further reduced, any tendency for "normal" capitalization rates in farm land to follow probably would be largely offset by such factors as keener appreciation of risks and (it may be hoped) more satisfactory alternative economic opportunities.

average values in the Spring of 1945 by about 25 per cent. However, the collection of rents higher than "normal" (1950) for several intervening years would justify a present (1945) value slightly higher than the "postwar normal value." Thus, on the further assumption that farm income and land returns will decline in straight-line fashion to the 1950 levels, present average values still would be about 20 per cent above warranted levels.

On this basis, the question posed at the start of this discussion—is the present inflation of land values a "justifiable inflation?"—should be answered in the negative.

On this basis, land values should have levelled-off at the beginning of 1944 and started a slow decline, instead of continuing to rise since that time at the rate of about 1 per cent a month.

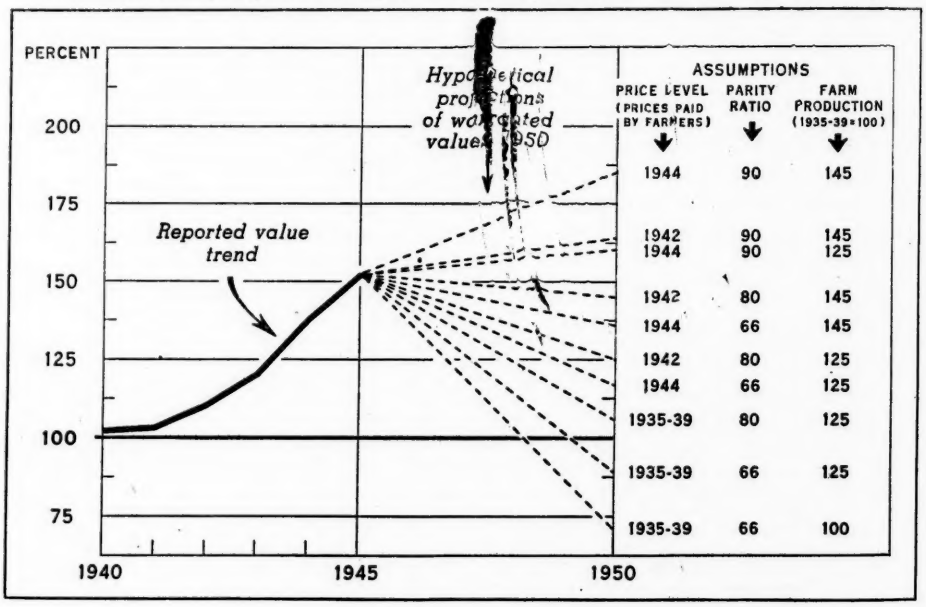
On this basis, if the current rate of increase of land values should continue to the Spring of 1946, land prices would be about 40 per cent above "warranted" levels. And, on this basis, if the same rate should continue into the Spring of 1947, land prices would be about 55 per cent above "justified" levels.

Parity Ratios and Price Levels

Another approach to the "outlook" for postwar land values may throw some additional light on the relationships involved. This approach is indicated in the question: With given levels of output, what price levels and parity ratios would be required to sustain a postwar level of warranted land value (1950) equal to that of March 1945? (Under the formula indicated above, a "normal" warranted land value level of 152, on a 1935-39 base, would correspond to a cash farm income of approximately $13.5 billions.)

With output at 125 per cent of 1935-39 and with a 1942 level of prices paid, the

FIGURE I. FARM LAND VALUES: REPORTED AVERAGE VALUE PER ACRE, UNITED STATES, 1940-1945, AND HYPOTHETICAL WARRANTED VALUES, 1950, ON INDICATED ("POSTWAR NORMAL") ASSUMPTIONS. *Index Numbers* (1935-39 = 100)



required parity ratio would be 97 (Table III). With output at 145 per cent, the needed parity ratio would be 83. If we assume a parity ratio of 80 and output at 125, the required level of prices paid is 142—about 20 per cent above that of 1942 and 7 per cent above 1944. With output at 145, the prices-paid level would need to be 122—about 4 per cent above 1942.

Whether the market would actually be cleared at the various prices-received levels implied in these hypotheses is not certain. The result probably would depend in considerable part on the extent of government programs to support or increase the effective demand for farm products.

Dangers Ahead

In any event, if land prices should continue to rise for another year or two at recent rates and if the postwar general price level should not be substantially above that of 1944, a long and painful postwar deflation of land values would

TABLE III. FARM LAND VALUE: COMBINATIONS OF PRICE AND PRODUCTION LEVELS AND PARITY RATIOS UNDER WHICH A POSTWAR LEVEL OF WARRANTED LAND VALUE (1950) EQUAL TO THAT OF MARCH, 1945, COULD BE SUSTAINED[1]

Hypothesis	Assumptions for 1950				Required Price Level (Prices Paid) Index (1935–39 = 100)	Required Parity Ratio
	Land Value Index March, 1945 (1935–39 = 100)	Production Index (1935–39 = 100)	Price Level (Prices Paid) Index (1935–39 = 100)	Parity Ratio		
	Per cent	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*
A	152	100	100	.....	.....	142
B	152	125	100	.....	.....	114
C	152	145	100	.....	.....	98
D	152	100	117	.....	.....	121
E	152	125	117	.....	.....	97
F	152	145	117	.....	.....	83
G	152	100	133	.....	.....	107
H	152	125	133	.....	.....	86
I	152	145	133	.....	.....	74
J	152	100	.....	66	216	.....
K	152	125	.....	66	173	.....
L	152	145	.....	66	148	.....
M	152	100	.....	80	178	.....
N	152	125	.....	80	142	.....
O	152	145	.....	80	122	.....
P	152	100	.....	90	158	.....
Q	152	125	.....	90	127	.....
R	152	145	.....	90	109	.....

[1] The "anchor-year" 1950 is assumed to be a "postwar normal year." See text for other assumptions and explanation of method.

follow as a plague to American agriculture and as a factor stimulating various sorts of proposals for public subsidies tending to support land prices or to "bail out" luckless owners.

Probably many war veterans will be buying land within the next couple of years, both with and without government-guaranteed loans. These men should not have to pay greatly overinflated prices in order to obtain a piece of land in the country for whose defense and existence they have risked their lives. It is no service to the veteran or any other man to give him an opportunity to get a farm at a third or a half more than it may be worth in a few short years. High land prices load the scales heavily against success in farming, particularly if a farm is bought on a thin equity. Years of struggle on a farm under a large debt, and perhaps eventual loss of the property, are not a fitting reward for our returned soldier.

Indicated Policies

The course for public policy in the critical months and years just ahead is reasonably clear: (1) Continuation and strengthening of wartime fiscal and monetary controls and of adequate direct control of commodity prices to combat tendencies toward general inflation and land price inflation. (2) Establishment of a public appraisal service available to war veterans and others as a safeguard against widespread purchase of farm land at clearly excessive prices. (3) Application of a "resale gains tax" on speculative profits to eliminate the out-and-out speculative activity which is already a significant inflationary factor in the land market in a number of areas.

The basic justification for special public action with respect to the land market during the emergency period lies in the insurance aspect of such a course, in contrast to the gamble involved in letting land values and debt go where they will. The impacts of an adjustment from "controlled" lower levels to permanently higher postwar levels (if such should be justified) would be much less disruptive than would adjustment from uncontrolled inflated values to substantially lower price levels. The sounder course would seem to be that of applying brakes to the upward movement of land prices until economic visibility improves and a better basis is available for predicting future prices and income levels.

Fixed Dividends for All Public Utility Stock

By ARTHUR PETER BECKER*

THE current attitude of the United States Supreme Court on utility regulation does not warrant the optimism displayed by some writers. One can discern two dangerous tendencies resulting from this attitude: First, there is the additional impetus given to the trend towards government by men instead of by laws. This trend has long been evident, but in the last fifteen years it has gathered a momentum that may carry us further into a regimented existence than is necessary in deference to the economic welfare of the nation. Indeed, the banner of national welfare may mislead many who do not stop to look at those carrying it or in which direction it is going. Reforms should proceed in definite recognizable measures with full awareness of all their future implications.

The growth of authority in public utility commissions cannot avoid infecting other agencies of the government as well as thinking citizens. The "fair return" problem is not solved by additional power in the hands of commissions for no method has been established as a just one. Moreover, the wide powers now possessed by utility commissions can permit much abuse without transgressing the United States Supreme Court's new concept of justice with respect to the nature of a "fair return."

Second, there is the undermining of justice to consumer and investor alike. This takes on two aspects: (a) The Court is now hesitant to judge the correctness of rate bases because of its evident past inability to arrive at a just and workable method. True, utility commissions generally are better qualified in the work of regulation but it is questionable if they generally are better qualified in handing out justice. The main criteria of utility regulation would seem to be those of protecting the consumer and administrative efficiency. Consequently, a commission seldom possesses the impartiality requisite to greater justice in deciding legal disputes.

(b) The other aspect in the tendency toward the undermining of justice to consumer and investor is found in permission by the Court of the simultaneous existence of differing rate base methods whose results may vary considerably to the point where they violate "due process." It is hard to see how a 15% dividend on common stock is as just as 9% from all points of view, or even from any one point of view. A utility trading heavily on the equity can easily net 15% or more on its common stock even if a conservative rate of return is applied to a prudent investment, reproduction cost, or a historical cost rate base. To an investor with one hundred shares ($100 par) of common stock can $900 in dividends be as just as $1500? Likewise from the consumers' point of view, does the payment of either rate of dividend indicate equal justice? It does not seem so to the present writer. The $600 difference to our one stockholder is a large enough sum for a court to award him as damages if it is rightfully his. If it does not belong to the stockholder, assuming now that he has been paid the extra $600, the sum should be returned to the utility. Considering all stockholders, the return of such extra dividends might well allow the lowering of utility rates to consumers. Nevertheless, the Supreme

* Professor of Economics, Morningside College, Sioux City, Iowa.

Court's attitude seems to imply either an indifference toward or a hopelessness of ever discovering a definite, yet just formula to solve the "fair return" problem.

Suggested Solution: Fixed Rate /Capitalization Method[1]

In this writer's opinion, the only way in which the "fair return" problem of public utility regulation can be solved adequately and at the same time can avoid the dangers outlined above is to require that all utilities have none but fixed interest and dividend-bearing securities. Not before this is accomplished will public utility regulation result in the greatest possible economy of utility service, justice to consumer and investor alike, and fulfillment of administrative needs. All utility stock must bear fixed rates of return, as is the case with bonds.

The rate base which follows from the above recommendation should not be confused with those known as the sum of the capital liabilities, prudent investment, historical cost, or reproduction cost. Instead, the suggested rate base is the sum of the par values of outstanding stocks and bonds. Surplus is not included in this rate base as it is in the sum of capital liabilities rate base. The other above-mentioned valuations may or may not be used in determining the amount of security capitalization. Conditions under which these valuations may possibly be used will be considered later. But, whatever method is used to determine the worth of assets for valuation purposes both the valuation reserves and surpluses must be deducted from the total assets. Total capitalization does not reflect assets offset by these accounts.

[1] The term "fixed rate /capitalization" refers to the method in which a fair return to investors is taken to be the sum of the fixed returns on all securities outstanding.

The Nature of the Fixed Rate /Capitalization Method

The first step in carrying out the objectives of the fixed rate /capitalization method is to require all new issues of stock to bear the promise of a stated rate of return, and no more. Secondly, all outstanding stock lacking such a promise would have to be exchanged for fixed dividend-bearing shares. Within a reasonable period of time, say two years after the inauguration of the program, no utility would have stock shares producing uncertain or fluctuating dividends.

While the initial sale of stock and bonds might be at par if they bore current interest and dividend rates, the marketing of securities would be facilitated by allowing sale prices to deviate somewhat from par. Since it would be most unusual for the fixed rates on securities to coincide with the market rates, practical considerations necessitate the sale of securities at discounts or premiums. The latter must be viewed as expenses or as other income and, in the case of bonds, amortized over the life of the bonds by adjusting the interest or dividend costs. While discount or premiums may be amortized over the life of bonds, the problem differs with respect to stock which has a "permanent" life. Since stock is to last the life of the utility, it is proper to carry a discount or premium permanently.

All utility securities must guarantee investors the opportunity to receive a fixed return. Inasmuch as the securities would bear cumulative rates of return, provision would have to be made by the utility, in accordance with an adequate commission requirement, so that stock dividend and bond interest payments may continue even during periods of depressed business activity. Reserves for this purpose would be set aside during

prosperous periods. If, in depression, reserves prove inadequate and a payment is passed, of course it would not be practical to increase utility income by increasing rates to consumers. It would be necessary to wait until economic conditions improved before making up obligations to the investors. Utility income may possibly be increased if a lowering in customer rates would greatly stimulate the desire for more service, which could be given without expanding the plant. An enlargement of the reserve program may be required so that dividend payments may be kept up in the following slack period. The effort to meet obligations to investors would do much to enhance the credit stability of utilities and would allow the obtainment of investment funds at favorably low rates. This effort, however, should fall short of government subsidy which would be an uneconomic and discriminatory measure.

Possible Refinements of the Method

Of considerable, although secondary, importance is the requirement that all securities be callable, stock as well as bonds, and subject to retirement or refunding. This provision is essential if economies of operation are to be effected by taking advantage of favorable investment markets when funds are abundant and rates are low. Since the essence of public utility regulation is that the public be given utility services as economically as is compatible with adequacy and the interest of investors, a rate any higher than is necessary to raise funds when and as needed must be considered uneconomic, and unjust to consumers as well. All shares of stock representing definite capital contributions should require a definite rate of return just sufficient to draw forth the necessary funds, i.e., enough to satisfy the contributors, but no more. Under the present state of affairs the yield on utility common stock is often higher than that necessary to draw forth the investment by the stockholder.

Since the sum of the par values of outstanding securities would serve as the rate base, the question arises concerning the quantity of securities to be issued and to be kept outstanding. Let the reader be reminded at this point that because of possible sales at discounts or premiums, the par values of securities may be more or less than the contribution made by the investors in exchange for the securities. The quantity of securities issued at the time of construction of, or on the utility would be determined by the amount of capital contribution which is economically justified at current prices. Securities should evidence the exact terms under which needed and authorized (by the utility commission) capital contributions can be most advantageously bargained for by the utility.

On the other hand, the problem of the quantity of securities to be kept outstanding is more difficult. Should a capitalization rate base remain unchanged in face of changing values in a dynamic economy? Under conditions of improved technology, reduction in effective demand, and a permanently lower price level, it might be necessary to scale down total outstanding securities, which could be accomplished out of a general reserve fund established for that purpose. Such scaling down would be attended to if total capital costs are greater than would be necessary on a similar utility (constructed at lower current prices or with improved technology) or on a smaller utility (if effective demand has declined).

The foregoing assumes that an obsolete plant should not be a vehicle for burdening the consumers with a per-

manent excessive security capitalization. It is clear that part of the dividend and interest payments on a plant that currently is not worth the expenditures being made on the basis of a former value constitutes an uneconomic or unnecessary cost. In line with this reasoning, if new developments in production indicate an obsolescence, the capitalization should be reduced by an equivalent amount, to be accomplished out of the aforementioned general reserve fund. Thus, a definite rate base is retained and expenses are kept at a minimum. At the same time every effort is made to adequately compensate investors for the securities they return. If the reserve fund is not immediately large enough for the necessary security retirement, as many securities as possible should be retired, the remainder to be called in as the reserve fund further accumulates.

The same procedure in reducing the rate base holds when the value of the utility declines because of a downward shift in effective demand. Refusal to reduce the rate base would result in an unnecessary expense burden upon the current consumers. Moreover, revenues may fall to the point where the fixed interest and dividend obligations to investors cannot be met without lowering the outstanding security capitalization. This method alone keeps the security capitalization and reproduction value of a utility (no larger than necessary) in close harmony, as well as reduces capital costs. Investment retirement must proceed to the point where the obligations on remaining securities can be met. As a last resort, if the reserve fund is not large enough and cannot be built up any further—a most likely situation in utilities of decreasing demand—some securities may have to be retired with only partial compensation to investors. Possible risk of loss to investors cannot be avoided entirely even in a utility, although the risk is considerably less than in other businesses. At present, public utilities are occasionally forced to such financial reorganization which must be viewed as a necessary health measure for any financially-ailing enterprise. Since, according to this method, the continual passing of interest and dividends will not occur, investors will not be permanently discouraged and the enterprise will again be placed on a sound financial basis by the reduction of its capital costs.

In the event of a declining long-run price level, it will be necessary to adjust capitalization to approximate the current value of the utility, just as such adjustment is required when demand decreases or production techniques are improved. Failure to carry out the proper adjustment will cause consumers to be paying more than is necessary for the product or service under current conditions. Again, investment retirement in the necessary amount must come from the general reserve fund if that is at all possible, with the consumer bearing the burden of such reduction.

At this point several questions might arise in the mind of the reader. It may be asked whether adjusting capitalization downwards, under conditions pointed out above, is not the same as the reproduction cost method after all. However, according to the plan herein presented reproduction cost is not used directly as the rate base but merely as a guide for the *possible* adjustment of capitalization. Moreover, reproduction cost is useful here only in indicating to what extent capitalization should be decreased. Capitalization is increased only when utility expansion is warranted.

Another question may be whether or not investment retirement really would be a net saving, i.e., whether the cost to

the consumer or security retirement really would be less than continued servicing of an overly large capital structure. The answer depends upon the length of time one uses in calculating the excess service charges as well as the size of the excess charges. Most likely a net saving to the consumer would be effected over a long enough period of time.

However, any possible saving to consumers through the contraction of capitalization as indicated above is but a refinement of the fixed rate /capitalization method. Of primary importance is the requirement of fixed dividend rates on all shares of stock. This will effect the largest savings for consumers as well as making utility regulation simpler and more accurate. By this method the rate base is not a problem vainly begging solution. The base is the utility's capitalization and the rate of return is the composite of the specified interest and dividend rates on all securities.

If, on the other hand, the general price level were to increase and appear destined to remain at the higher level, adjustment of capitalization to approximate current values would be unnecessary and uneconomic from the utility's viewpoint. Moreover, the issuance of additional securities would place an unnecessarily increased burden upon consumers. One object in utility regulation is to decrease costs whenever an opportunity presents itself. A utility would be increasing its costs of production needlessly if it were to issue additional securities bearing fixed rates of return merely to inflate capitalization to equal a high reproduction cost. In the interest of economy and justice to the consuming public capitalization must never be increased a dollar without the utility receiving an equivalent capital contribution which is considered necessary to warranted plant expansion. Where the investor does not add to his former contribution no injustice is worked upon him if he does not receive additional securities with a general price increase. However, were demand to increase, additional capitalization may be economically justified if the utility cannot step up production sufficiently without expansion of the fixed plant. To the extent that more funds are needed, capitalization should be increased.

Merits of This Method

The foregoing technique of rate regulation follows throughout the requirements of justice, economy, and administrative ease and effectiveness. There can be no argument that justice is not dealt the investors for, if they willingly accept a fixed return on stock, it must be assumed that this consideration is satisfactory. If the consideration were insufficient they would refrain from investing. No question of justice arises concerning the fixed return of preferred stock or bonds.

Justice to the consumer in rate regulation requires that adequate service be given by the utility at the lowest possible price. Only if all securities bear a definite return can this goal be attained. The present system of allowing a "fair rate" on "fair value" of the assets allows common stockholders to trade heavily on the equity. As a consequence the common stock dividends are far greater in many utilities than would be necessary to draw forth the contributions made by the common stockholders. The courts themselves have said that the return to investors should be thus limited. However, valuation techniques other than the one herein presented do not realize or even approach this avowed principle.

The interests of consumer justice are identical with the greatest economy of utility operation which strives at output

at least cost. This can be accomplished only if definite calculations are possible. In order that cost calculations be significant, the costs of all factors of production must be absolutely accountable. The fixed rate /capitalization method would keep the cost of investor's contributions at a *certain* minimum; this perfectly fulfills the requirements of economy with respect to capital funds. Stability of return on all investments in utilities will improve the credit position of these enterprises. With the elimination of fluctuating stock dividends, risk and uncertainty in stock would be lessened and favorable terms in stock financing could be gotten by the utility at a cost little higher than on bonds. The avoidance of great expense by commissions and utilities in determining the rate base would itself be a substantial increase in economy.

The administration of public utility rates unquestionably has proved the most troublesome and difficult of all problems which commissions have to face in the regulation of utilities. The search for a "fair rate of return" and a rate base founded on "fair value" has been futile and a waste of effort, time, and money. The fixed rate /capitalization method eliminates with amazing simplicity all of these administrative difficulties since it represents a stable base at any particular time and a definite obligation to investors, who themselves agreed to accept a certain return based upon their contribution. Thus, controversy concerning the rate base and rate of return cannot exist.

Legal Considerations

The legality of a capitalization rate base is partially dependent upon a clear understanding of the purpose for which a utility's assets are to be used. The fact that the capitalization rate base does not reflect all of the utility's assets does not mean that the investors are having their constitutional rights denied. At least two decisive reasons can be given: (1) Capitalization (adjusted for premiums or discounts on securities) reflects the exact contribution made to the assets and a return can be allowed only the extent of the contribution, (2) Assets in excess of capitalization or contribution have arisen through the operations of the utility supposedly in the interest of the public; hence these assets belong to the public, at least that part not necessary to protect the investor against the passing of interest payments and investment loss. While part of the surplus must be appropriated to protect the investor this portion cannot be considered part of the rate base for that would be double counting for the investor's benefit. Any surplus over what is necessary for the well-being of the utility, including the obligations to investors, is the result of overcharging the consuming public and cannot be considered as belonging to the investors whose interests are adequately safeguarded. Thus, the fixed rate /capitalization rate base can in no way be construed under the Fifth or the Fourteenth Amendments to the Constitution as denying the investor *his rightful* property.

The legality of the fixed rate /capitalization method is further secured by the nature of government regulation of utilities, the principles of which are well established by court decisions, federal laws, and the statutes of most states. It is within the necessary and recognized authority of a commission, charged to regulate effectively, to supervise and control the quantity and nature of securities issued by a utility. Requiring all securities to have fixed rates of return merely extends a practice which affects

the major portion of utility securities already.

Moreover, the fixed rate /capitalization method must be upheld with due respect to the law of contracts, for securities are in the nature of contracts and, if the parties to the agreement fulfill the conditions they agreed to voluntarily, no one can interfere. If the utility duly contracts with the investor for funds in return for a periodic consideration, the utility's responsibility is clear. It would have to meet interest and dividend payments which it willingly assumed and which were willingly accepted by the investors in exchange for their contribution of money or its equivalent. No business transaction can be further within the law, nor does the law apply anywhere more clearly.

The ratemaking method herein presented is in accord with the broad principles uttered in *Smythe* v. *Ames*.[2] These principles can be usefully applied for they recognize the significance of the various factors which under certain conditions should be considered in deciding upon a fair return. The attempted literal application of the Smythe principles to other methods of determining a fair return has fared disastrously and has undermined effective regulation to the point of impracticability as well as nonsensical reasoning.

Lastly, the fixed rate /capitalization method would significantly implement the Supreme Court's current position on ratemaking as voiced in the *Federal Power Commission* v. *Natural Gas Pipeline Co.*[3] and *Federal Power Commission* v. *Hope Natural Gas Co.*[4] cases. There ought to be some definite and calculable way of arriving at utility rates that are just and reasonable. It would seem that a fair return to investors should mean that the same method of calculation and elements entering into the calculations be used. The Supreme Court has pointed out that a rate order is unjust or unreasonable if it interferes with the utility's successful operation, credit standing, ability to attract necessary capital, and ability to adequately compensate investors. This is a negative definition of just and reasonable rates. The field is wide open to establish a positive definition. The fixed rate /capitalization method would not only positively define reasonableness and justice in the required sense but also insure greatest economy of operation by the utility and improved efficiency in regulation. Moreover, our government would be restrained in its tendency to increase administrative authority unnecessarily.

[2] 169 U. S. 466 (1898.)
[3] 315 U. S. 575 (1942)
[4] 320 U. S. 591 (1944)

Factors Affecting Value of Land and Water in Irrigated Land

By H. E. SELBY*

IT IS a common observation that the higher values of land and the higher costs of irrigation usually are found in areas of good land and areas of intensive farming rather than in areas of poor land and extensive farming. This is because the value of crops per acre usually is larger with higher yields and with more intensive crops such as fruits and vegetables, which permits larger returns per acre to either land or water, or to both, than in less productive and in less intensive areas. It also is commonly observable that farms generally are larger in areas of poorer land and less intensive farming. With the smaller return per acre in such areas a larger acreage per farm is necessary to give as large an income to the farm operator as may be obtained from a smaller acreage in more productive or more intensive areas.

The more productive and more intensive irrigated farming areas usually support the higher values of both land and water. If the cost of irrigation water were relatively low in such an area it would be expected that a larger proportion of the joint return to land and water would accrue to land. This larger return would be capitalized into a higher land value than in a comparable area with higher water cost. Thus, for areas of equal productivity and equal intensity of farming, an inverse correlation between value of land and cost of water would be expected. A corollary of this theorem is the idea that inflation of land values in an irrigated area absorbs part of the ability of the farmers to pay irrigation costs.

Although larger sizes of farms are associated with less intensive farming (inverse correlation) farm management studies generally show that for a given type of farming larger farms give larger profits per acre. It might be expected, therefore, that if the variation in size of farm associated with type of farming were held constant, positive correlation between size of farm and return to land and water would be found.

I.

Analysis of Census data sheds some light on these relationships between type of farming, productivity of land, size of farm, land value and irrigation costs. A major limitation is that only rather crude measures of these variables are available in Census figures. Also, anyone who has worked with Census statistics on irrigation is aware of many imperfections in the data, particularly discrepancies between the Census of Agriculture and the Census of Irrigation. Despite these limitations, the data indicate relationships that are useful in estimating the value of irrigation water and feasible irrigation payments in new irrigation development areas.

Most of the data pertaining to the variables that have been mentioned are found in the Census of Agriculture rather than in the Census of Irrigation. For this reason, the figure used in this analysis for total acreage irrigated was the sum of the acreages of "irrigated cropland harvested" and "irrigated pasture" as given in the Census of Agriculture instead of the "area irrigated" as given in the Census of Irrigation. The

* Bureau of Agricultural Economics, U. S. Department of Agriculture. The writer received helpful suggestions from colleagues in the Bureau of Agricultural Economics and from G. M. Kuznets of the University of California.

study was limited to counties in the 11 Western States with a total acreage irrigated of 1,000 acres or more. Measures of the several variables were calculated from 1940 Census statistics, for each of these counties for which sufficient data were available, as follows.

Type of Farming. The acreage of each irrigated crop reported in the Census of Agriculture was computed as a percentage of the total acreage irrigated. The acreage of irrigated vegetable crops is not reported. It was assumed that the entire acreage of vegetables was irrigated unless the acreage of vegetables exceeded the difference between the total acreage irrigated and the sum of the reported irrigated crops, in which case that difference was used as the acreage of irrigated vegetables. An "index of intensity" was computed as the percentage of the total irrigated acreage in orchards, vineyards, planted nut trees, and vegetables, plus one-half of the percentage in semi-intensive crops such as sugar beets, cotton, potatoes and beans. This gives an index with possible values ranging from a minimum of 0 for no intertilled crops to 100 for all fruit and vegetables, with intermediate values for various combinations of crops.

Productivity of Land. The measure used was the reported average yield of alfalfa in tons per acre. This was used because alfalfa is the crop that is most nearly common to all irrigated areas. An adequate composite crop yield index would be better, of course but, because of lack of data on yields of irrigated fruits and vegetables for a number of important irrigated counties, it was thought that a composite index based on available data would be little, if any, better than yield of alfalfa. Six counties were not included because yield of alfalfa was not reported.

Size of Farm. This meant irrigated acreage per farm, computed by dividing the total acreage irrigated by the number of irrigated farms.

Land Value. (The value per acre of irrigated land without buildings.) From the reported value of land and buildings of irrigated farms, was subtracted the reported value of buildings on such farms, and the computed value of nonirrigated land in irrigated farms. The latter was computed at the average value per acre of land without buildings, in nonirrigated farms. In a number of counties the value per acre of nonirrigated land in irrigated farms is considerably less than that of land in nonirrigated farms and this method of computing the value of irrigated land gives obviously erroneous results. To eliminate the counties with possible major errors in this respect, 132 counties in which the total value of the nonirrigated land in irrigated farms exceeded the total value of the irrigated land were not included. Thus, even if the nonirrigated land in irrigated farms were entirely valueless, the error in calculating the value of irrigated land by this method could not exceed 50 per cent in any of the counties included. From general knowledge of conditions in the counties that were included it is thought that in no case is the error as large as 50 per cent, and that in most cases a reasonably close approximation of the value of irrigated land is obtained.

Irrigation Cost. (The "average cost of water per acre irrigated" reported in the Census of Irrigation for "primary enterprises," plus the cost of water in "supplemental enterprises," if any, computed as a cost per acre for the entire acreage irrigated under primary enterprises.) Eight counties in which the cost of water was reported for less than 50 per cent of the total acreage irrigated were not included. The irrigation cost represents the average annual expenditure per acre of irrigated land, covering operation

and maintenance, interest, and payments on construction cost.

Of the 411 counties in the 11 Western States there were 345 with a total acreage irrigated of 1,000 acres or more and, of these, there were 199 for which the measures of the five variables described above were available.

In Table I is shown the distribution of the 199 counties by intensity index groups and the relation of intensity of farming to the other variables.

It is obvious that there is considerable gross correlation between all of the variables. The counties with more intensive farming had quite consistently higher average yields of alfalfa, smaller irrigated acreage per farm, higher land values and higher irrigation costs.

Even the considerable number of counties for which the data were available, 199, was inadequate to permit sufficient sorting by one variable and then sub-sorting by others to give a satisfactory analysis of the net relationships between the several variables. To do this, a multiple regression analysis was made.

The coefficient of multiple correlation between the intensity index, alfalfa yield, farm size and irrigation cost as independent variables and land value as the dependent variable was .826. The coefficients of gross and partial correlation, and of determination,[1] are shown in Table II. The partial correlation of land value with the computed intensity index is greater than with soil productivity, as

[1] Amount of variation in the dependent variable associated with variation in the independent variable independently of the other independent variables.

TABLE II. RELATIONSHIPS OF INDICATED INDEPENDENT VARIABLES TO VALUE PER ACRE OF IRRIGATED LAND (199 COUNTIES IN THE 11 WESTERN STATES, 1939)

Independent Variables	Coefficient of Gross Correlation	Coefficient of Partial Correlation	Coefficient of Determination
Intensity index....	.785	.414	.352
Alfalfa yield.....	.626	.283	.132
Farm size.....	—.299	—.013	.002
Irrigation cost....	.748	.259	.196

TABLE I. RELATION OF INTENSITY OF FARMING TO SOIL PRODUCTIVITY, SIZE OF FARM, LAND VALUE, AND IRRIGATION COST (199 COUNTIES IN THE 11 WESTERN STATES, 1939)

Intensity index	Number of Counties	Mean Intensity Index	Alfalfa Yield Per Acre	Acres Irrigated Per Farm	Value of Irrigated Land Per Acre	Annual Irrigation Cost Per Acre
			Tons	*Acres*	*Dollars*	*Dollars*
0.....	14	0	1.8	280	51	.48
1— 9.....	52	5	2.1	87	63	1.11
10—19.....	47	14	2.5	58	93	1.76
20—29.....	38	23	2.7	57	116	2.94
30—59.....	31	41	3.3	42	214	5.14
60 and over...	17	76	4.2	35	491	8.87
All.....	199	22	2.6	76	139	2.86

measured by alfalfa yield, and the partial correlation with size of farm is practically nil. The coefficients of determination for intensity and alfalfa yield indicate that these 2 variables account for about one-half of the variation in land value.

The coefficient of multiple correlation between the intensity index, alfalfa yield, farm size and land value as independent variables and irrigation cost as the dependent variable was .831. The coefficients of gross and partial correlation, and determination, are shown in Table III. The relationships indicated are similar to those for land value as the dependent variable. The partial correlation with the intensity index is somewhat higher and that with alfalfa yield somewhat less than was the case for land.

If all of the influence of various factors affecting the joint return to land and water were eliminated, an inverse net correlation between irrigation cost and land value would be expected. The partial correlation of .259 between these variables therefore indicates that considerable determination of both of them by causal factors remains after eliminating the effect of the computed intensity index and alfalfa yield. With data that would provide better measures of intensity of farming and productivity of land it would be expected that more of the variation in value of land and water would be explained by these factors and that the partial correlation between irrigation cost and land value would approach or become a negative value.

Apparently there is not enough difference in the average size of farms by counties to show positive partial correlation with land value and with irrigation cost due to larger net returns per acre on larger farms. It is still to be expected that, with the much greater range in size of individual farms, size of farm has a significant relation to value of land and water.[2]

TABLE III. RELATIONSHIPS OF INDICATED INDEPENDENT VARIABLES TO IRRIGATION COST PER ACRE (199 COUNTIES IN THE 11 WESTERN STATES, 1939)

Independent Variables	Coefficient of Gross Correlation	Coefficient of Partial Correlation	Coefficient of Determination
Intensity index....	.803	.485	.417
Alfalfa yield.....	.583	.151	.065
Farm size.....	—.335	—.082	.017
Land value.....	.748	.259	.191

II.

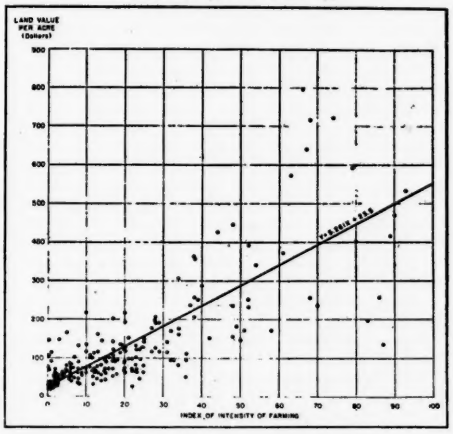
The foregoing analysis indicates that of the factors being examined, intensity of farming is most closely related to value of land and water. Let us examine this relationship further.

A scatter diagram of the county values of the intensity index and land value is shown in Figure 1, and of the intensity

[2] Plotting the residuals as deviations from the net regression lines indicated some curvilinearity associated with size of farm, but no significant amount in the relationships between the other variables. It did not appear, however, that a curvilinear analysis would materially improve the relationships shown by the linear analysis.

FIGURE 1. RELATION OF INTENSITY OF FARMING TO VALUE OF IRRIGATED LAND: 199 COUNTIES IN THE 11 WESTERN STATES, 1939*

(Each dot represents a county)

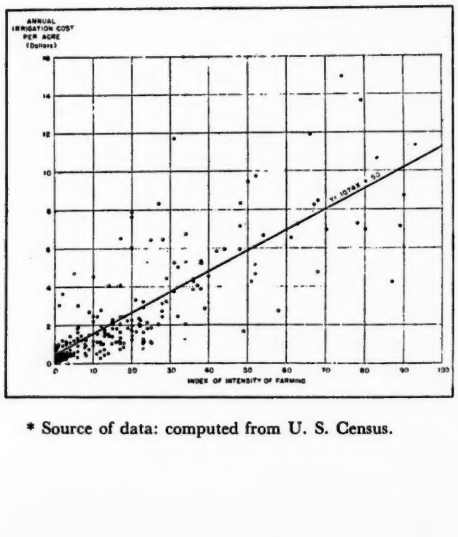


*Source of data: computed from U. S. Census.

index and irrigation cost in Figure 2. Several of the highest land values and highest irrigation costs are for citrus-fruit producing counties. An intensity index that would give additional weight to production of citrus fruit would decrease the deviations of such counties from the regression line. Some of the high intensity counties with lowest land values and irrigation costs are counties in which a large proportion of the irrigated acreage is in orchards but the yield of fruit is low. Yields of irrigated orchards and other intensive crops are not available in the Census figures and therefore could not be included in a measure of productivity of land.

It is interesting to note the absence of low irrigation costs for the more intensive counties. It might be expected that low cost irrigation water would be available in some, at least, of the more intensive farming areas. But among the 24 counties with an intensity index of 50 or more, the lowest irrigation cost was $2.76 per acre. Of the 175 counties with an intensity index of less than 50, 75 per cent had costs of less than $2.76.

FIGURE 2. RELATION OF INTENSITY OF FARMING TO COST OF IRRIGATION WATER: 199 COUNTIES IN THE 11 WESTERN STATES, 1939*
(Each dot represents a county)



* Source of data: computed from U. S. Census.

Only 1 of the 86 counties with an intensity index of 20 or more had an irrigation cost of less than $1.00 per acre, but 46 per cent of those with an intensity index of less than 20 had irrigation costs of less than $1.00.

One reason for the absence of low water costs in the more intensive areas appears to be that most of the more intensive counties just happen to be areas in which irrigation water is scarce and costly. Another reason is that in most counties the acreage of land suitable for the more intensive crops is limited. If more irrigation water is available than is needed for the more intensive farming on the better lands and, if it is not too costly, it is used for less intensive farming on the poorer lands. This gives a lower average intensity of farming for the county as a whole. If data were available for type of farming areas within counties, therefore, it would be expected that smaller intensive areas with lower water costs would be found. Still another reason for the larger proportion of low water costs in the less intensive counties and not in the more intensive is doubtless the fact that in many cases the present low water "cost" does not represent the original cost of developing the water, but rather a downward revision of the cost to a price that the farmers are able to pay. In many cases the original cost of the water in the less intensive areas has been as high or higher than in more intensive areas. In the more intensive areas the farmers have been able to pay the higher costs and continue to do so, while in the less intensive areas the price has been lowered to meet the farmers' ability to pay.

III.

The regression line in Figure 2 is of value as a rough check on the estimated value of water in proposed irrigation

development areas.[3] Many irrigation projects have been developed on the basis of values of water several times greater than the values indicated by this regression line, with consequent loss to either the developers of the project, the farmers, or both. Unfortunately, some current irrigation development proposals still use greatly overestimated values. Estimated annual irrigation payments that differ too much, say more than 50 per cent, from the value shown by the regression line for a given intensity of farming should at least be viewed with suspicion and carefully checked. To use the chart in this way requires, of course, an estimate of the type of farming that will develop, and is no guard against errors in making such a forecast. Assuming reasonably sound judgment as to the type of farming that may be expected, however, the chart provides some idea of a ceiling for successful irrigation payments. It should be kept in mind that the annual irrigation payment must cover operation and maintenance costs, as well as interest, and payments on construction cost.

The fact that the irrigation cost in some counties is considerably above the value indicated by the regression line in Figure 2 does not necessarily mean that such high costs are being paid successfully. It may be at the expense of low living levels of the farmers, or of failure to meet the depreciation of buildings and equipment.

Relationships between the items of irrigation cost, taxes on land, and interest on land value, relative to variation in intensity of farming are shown in Table IV

[3] It is obvious from Figures 1 and 2 that the assumption of homoscedasticity on which the calculation of the regression lines is based is not supported by the data. It would have been more accurate therefore to have minimized the sum of squares of weighted residuals, taking into account the larger dispersion of the dependent variables at the upper range of the independent variables. It is doubtful, however, that the introduction of weights would have materially changed the slope of the lines.

TABLE IV. RELATION OF INTENSITY OF FARMING TO IRRIGATION COST, TAXES AND INTEREST ON LAND VALUE (199 COUNTIES IN THE 11 WESTERN STATES, 1939)

Intensity index	Counties	Annual Cost Per Acre				Percentage of Total Cost			
		Irrigation	Taxes	Interest	Total	Irrigation	Taxes	Interest	Total
	Number	*Dollars*	*Dollars*	*Dollars*	*Dollars*	Per cent	Per cent	Per cent	Per cent
0.....	14	.48	.43	2.55	3.46	14	12	74	100
1— 9.....	52	1.11	.86	3.15	5.12	22	17	61	100
10—19.....	47	1.76	1.23	4.65	7.64	23	16	61	100
20—29.....	38	2.94	1.56	5.80	10.30	29	15	56	100
30—59.....	31	5.14	2.34	10.70	18.18	28	13	59	100
60—100.....	17	8.87	5.50	24.55	38.92	23	14	63	100
All.....	199	2.86	1.68	6.95	11.49	25	15	60	100

and in Figure 3. The amount of taxes was computed for each county by multiplying the value of the irrigated land by the tax rate given in the Agricultural Census for farms of full owners. Interest was computed on the land value at 5 per cent. The total of these items may be thought of as approximating a total annual return to land and water. It will be noted that the percentage distribution of this total into the 3 items does not vary greatly between the different intensity of farming groups. Estimates of these items in farm budget analysis studies that are too far out of line with the averages shown may be suspected of being unrealistic.

FIGURE 3. RELATION OF INTENSITY OF FARMING TO IRRIGATION COST, TAXES AND INTEREST ON LAND VALUE
(Free-hand curves through means of arrays shown in Table IV)

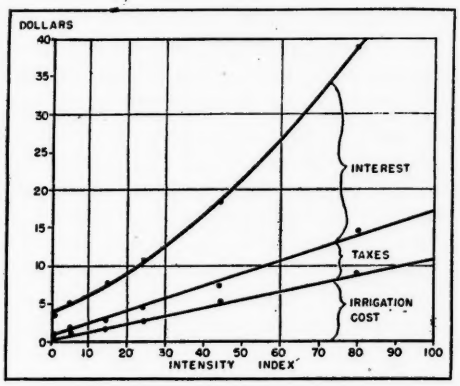
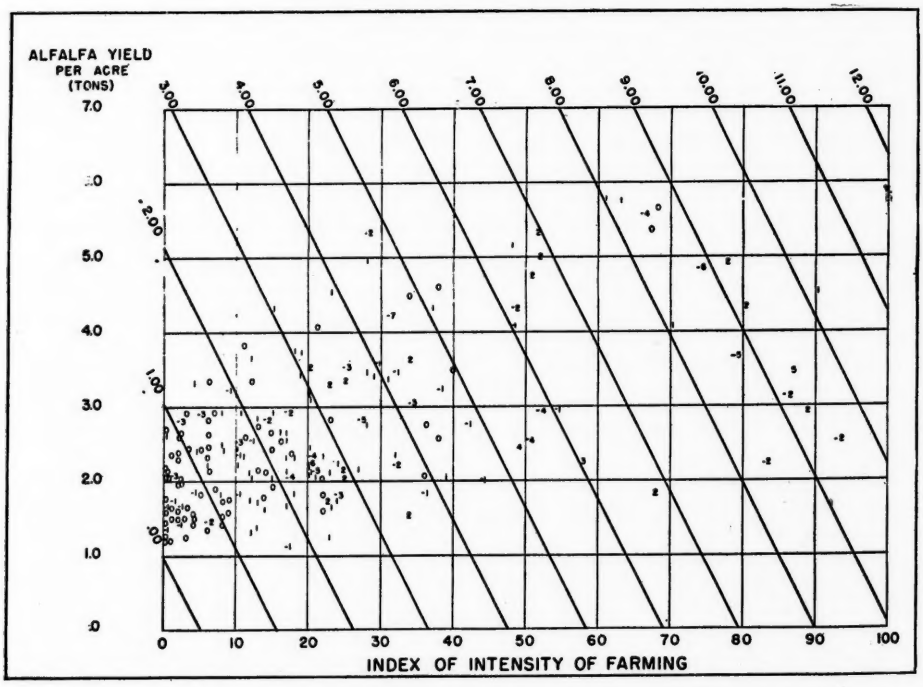


FIGURE 4. VALUE OF IRRIGATION WATER INDICATED BY INTENSITY INDEX AND ALFALFA YIELD[1]
(Indicated annual irrigation cost per acre—dollars[2])



[1] Based on computations from Census data for 191 counties in the 11 western states. Each figure on the chart represents the difference between the actual irrigation cost and the indicated value of irrigation water of an individual county having the intensity index and alfalfa yield indicated, expressed in the nearest whole dollar (0 = less than $0.50).

[2] Irrigation cost = .094 intensity index + .482 alfalfa yield — .476.

Yield of alfalfa was shown to have considerable correlation with land value and irrigation cost, although not as much as the intensity index. The combined relations of intensity of farming and yield of alfalfa could be used to check estimated values of water in proposed irrigation development areas. In Figure 4 is shown a "surface" representing the equation of estimate (X_0=.094 X_1+.482X_2—.476) of irrigation cost (X_0) from the intensity index (X_1) and alfalfa yield (X_2).

For the point on the chart representing any given combination of intensity index and alfalfa yield, the estimated irrigation cost is shown by the relation of that point to the values indicated by the diagonal lines. Thus, for an intensity index of 50, and an alfalfa yield of 3 tons, the point on the chart lies a little more than one-half the distance from the $5.00 line to the $6.00, indicating a value of irrigation water of between $5.50 and $6.00.

The figures on the face of the chart indicate the differences between the actual and the estimated irrigation cost for the combination of intensity index and alfalfa yield of each of the 199 counties. The average of these differences, disregarding signs, was $1.11[4] and their distribution by size groups was as follows:

Difference Between Actual and Estimated Values (dollars)	*Number of Counties*
0.00–0.49	72
0.50–1.49	82
1.50–2.49	25
2.50–3.49	7
3.50–4.49	2
4.50–5.49	6
5.50–6.49	4
6.50–7.49	1
All	199

The gross correlation of intensity index with irrigation cost (r = .803) was nearly as great as the multiple correlation from the regression of irrigation cost on the intensity index and alfalfa yield (R = .816) and as the multiple correlation from the regression of irrigation cost on the intensity index, alfalfa yield, size of farm, and land value (R = .831). Since the value of these relationships in forecasting the value of irrigation water in a proposed irrigated area is only as a rough check and frame of reference for other methods of analysis, the relation of the intensity index alone, as shown in Figure 2, is practically as good for this use as the multiple relation of intensity index and alfalfa yield shown in Figure 4. Using two variables as the basis of estimate, however, has the advantage over using only one that less accurate data for the one variable might be offset to some extent by more accurate data for the second.

Conclusions

1. Despite the crudity of the data, this analysis indicates that type of farming and soil productivity are important determinants of the value of land and of irrigation water in irrigated areas. It is to be expected that more adequate data would show greater influence of these factors.

2. Average size of farm seems to have no significant relation to value of land and water, independently of type of farming and soil productivity, within the range of average sizes of farms by counties.

3. A useful rough check of estimated feasible irrigation payments in proposed irrigation developments is provided by Figures 2, 3 and 4, assuming reasonably

[4] The standard error of estimate was $1.67.

sound judgment as to the type of farming that will develop.

4. Compilation and analysis of more adequate data on type of farming, soil productivity, land values and irrigation costs for more closely delineated type of farming areas, should give a better picture of the relationships between these factors and of the division of net returns between land and water.

Farming Opportunities for Veterans†

By HUGH H. WOOTEN*

ONE of the biggest and most challenging tasks facing this country is the tremendous human adjustment that must be made in the next five years. Agriculture has a significant part to play in this job. Around a million and three-quarters of our best farm men and youths left farms to serve in the armed forces. More than 200,000 of these men had been separated from service by January 1945 and about 8 to 10 thousand were being released each month during the first half of this year. Realizing the delayed opportunities that many of these men have experienced in getting started in farming and with full appreciation of the service that these men have rendered to our country, the Nation is concerned with the opportunities on the land for veterans, veterans' demand for land, and what might well be done to help veterans get established in farming.

Veterans' Demand for Land

The decision of veterans to farm will be influenced by many factors, many of which cannot now be clearly foreseen. However, there are, at least, guides that are available in attempting to measure quantitatively the probable magnitude of veterans' demands for opportunities in agriculture. One of these has already been mentioned—the number of men in military service who come from farms. The other is in the results of the recent survey by the Army[1] which, with appropriate adjustments to include other branches of the military service, provides an indication of the current desires of men in service to engage in agriculture after the war.

To the extent that statistical data now available from the Army's survey measure the interest in farming of the men in service, it appears that about 10 per cent have fairly definite plans to farm after the war. An additional 6 per cent have an interest in part-time farming. These estimates indicate that about 1 million men are planning full-time farming and possibly another half million are thinking of part-time farming or of rural residences while obtaining a substantial part of their income off the farm. Many more enlisted men have had at some time at least a year of experience in farm work on a full-time or a part-time basis. The survey made and inquiries from servicemen show that there likely will be a large demand for productive farms of family size, especially from men who have been delayed long past the normal age for establishing a farm and a home. The greatest interest appears centered in returning to home farms or to home communities, although a considerable number expressed interest in new land areas. Nearly 20 per cent of the men expressing definite interest in farming said they would consider new land farms.

Of the men interviewed in the survey who hoped to enter agriculture after the war, slightly over one-third said they owned farms or had family farms to

† Much of the material for this article has been drawn from a survey by the Land Settlement Work Group of the Interbureau Committee on Postwar Agricultural Programs of the U. S. Department of Agriculture, and submitted in a *Report*, "Farm Opportunities: Prospects, Problems, Policies," May 1945.

* Bureau of Agricultural Economics, U. S. Department of Agriculture.

[1] "Soldiers' Plans for Farming After They Leave the Army." *Postwar Plans of the Soldier Series*. Report No. B-131. Information and Education Division, Headquarters, Army Service Forces, December 1944. This report gives the results of 18,000 responses received in a sample survey during 1944 in groups approximating a cross-section of enlisted men (except illiterates;) also C. C. Taylor, "Veterans and Agriculture," *Annals of the Political Science Association*, March 1945.

which to return; nearly one-third said they knew a farm to rent or buy; and about one-third said they would have to look for a farm or a farm job. However, many of those indicating they knew of farms they could rent or buy may find those particular farms are not available to them when they return. Over 90 per cent of those planning to farm indicated that they expected to become farm operators, thus leaving only a small proportion who were considering long-time jobs as farm wage workers.

Of the men returning to farms, some will be disabled. On the basis of inquiries received by the Department of Agriculture from servicemen requesting information on farm opportunities, it appears that many disabled men thinking of farming will wish part-time farms or farm jobs which they can carry on to provide homes and to supplement income from pensions or other off-the-farm sources. Other men will want full-time farms for they know that physically handicapped men are now operating farms, performing much of the work themselves by the use of machinery. Likewise, many non-disabled men will desire part-time farms and rural residences while depending upon other employment for the major portion of their income; while many others will want full-time, fully equipped mechanized farms.

Opportunities on the Land

The best and largest number of opportunities for veterans interested in farming is on existing farms in developed communities. It is from the present owners of farms that veterans have the main opportunity for renting or buying farms. Every year a fairly large number of farms changes hands through voluntary sale or by lease. In 1943 and 1944 about 300,000 farms and farm tracts were sold each year through voluntary sale.[2] Nearly 30 per cent of the farms are rented and operated by full tenants. Many farmers have reached an advanced age and will wish to retire and rent or sell their farms. Around 600,000 farm operators are 65 years of age or over, and many of their farms will be turned over to sons or will be for sale or rent in the years immediately following the war.[3] Available data on farmer retirements indicate that there are some farmers who normally would have retired in the past few years, who have postponed retirement.

Approximately 160,000 farm-operator vacancies are expected annually in the early post-war period, or 800,000 during the first 5 years after the war.[4] These vacancies will occur from retirements and other normal reasons such as physical incapacity, deaths, and changes to other work, especially among older operators. Many of these farms will be for sale or rent. It is recognized that there are many qualifying factors affecting the opportunities to occupy vacancies as they occur on existing farms. About one-half of all farms normally are low income farms, producing products valued at $600 or less before the war. A considerable number of these farms are too small or too poor to provide a full-time farmer an adequate living. Many of the farms, however, are adequate, or are suitable for improvement and these will be the most sought after by men wishing to farm full-time. With the current high land values and larger sav-

[2] M. M. Regan, A. R. Johnson, and F. A. Clarenbach, *The Farm Real Estate Situation, 1943-44.* U. S. Dept. Agr. Cir. 721, January 1945, pp. 9-17; unpublished data from Bur. Agr. Econ. Land Market Survey, 1944 and 1945; and Harry A. Steele, "Postwar Land Settlement Opportunities in the Northern Great Plains," *Journal of Farm Economics*, pp. 409-12. May 1945.

[3] *Farm Operators in the United States, April 1944 and April 1940*, Series Census-BAE No. 3, May 7, 1945, p. 1.

[4] "Farm Opportunities: Prospects, Problems, Policies," p. 6.

ings and incomes, many elderly operators now are selling or leasing their farms. Others are turning their farms over to sons coming of age. Thus, many non-veterans will be competing for these same farms and automatically reducing the number available for veterans.

The outlook for part-time farming in combination with an off-farm job appears promising in many areas where steady industrial or other urban work is at hand. Many thousands of families over the past several years have lived on small farms near industrial centers and supplemented their incomes from industrial work by some farming and gardening. If the trend continues for more factories to locate in small towns and for better means of transportation there will be more opportunities for part-time farms. Many veterans who prefer farm life may find that it will be to their advantage to have a nonfarm job but live on small farms which will provide healthful surroundings and part of the family living with perhaps some supplemental income.

In addition to vacancies on existing farms, an important potential source of farms for veterans, which the federal government can make directly available through legislative action, is the publicly-owned surplus military land and the unsold land previously purchased for settlement purposes by the Farm Security Administration and other agencies during the farm settlement program of the past decade. If this land could be improved as farms and greater preference given to veterans in their purchase, opportunities for several thousand men would be provided. This could be accomplished by minor modification in present legislation governing disposal of surplus military land and of settlement land.[5] For example, it appears desirable to limit first priority in the private purchase of surplus military land to former owners who are planning to live on and personally operate family farms, with the next priority to veterans who wish to become established as farmers. Under existing legislation the veteran does not have much of a chance to purchase surplus military land directly. The preference given to former owners and tenants strongly encourages that they repurchase their former holdings if for no other reason than to exercise an opportunity to resell at a higher price.[6]

If all are declared surplus after the war, the military lands suitable for farming purchased from private owners since 1940 could be redeveloped into about 10,000 family-sized farms and ranches. Settlement lands and farms remaining unsold while not as extensive as military lands, likewise could provide a very substantial number. However, to insure their availability to veterans, amendments to controlling legislation would be necessary.

Public lands easily adapted to farming in all the states have already been settled. What remain must await irrigation, drainage, and clearing developments.[7] In Alaska, public land is available, but the opportunities for expansion of successful farming are limited by climatic conditions and lack of markets. Likewise, most of this land is covered with thick timber growth and must be cleared before farming is possible. As other industries expand, such as mining, forestry, and fishing, and additional roads and other

[5] This legislation consists of the Surplus Property Act. Public Law 457, 78th Cong., 2nd sess., and the controlling legislation for the Farm Security Administration.

[6] "Farm Opportunities: Prospects, Problems, Policies," p. 20.

[7] This statement is based upon current General Land Office Reports and other publications. See also: Gus Larson and H. H. Wooten, "Farms for the Yanks," *Esquire Magazine*, December 1944; and H. A. Steele, "Post-war Land Settlement Opportunities in the Northern Great Plains," *op. cit.*, pp. 414-15.

community facilities are constructed there will be increased opportunities for farm development. In 1939, there were 623 farms, including fur farms, in Alaska. Although there has been some increase over this number since 1939, any considerable further expansion must be preceded or accompanied by a general permanent increase in the population of the Territory. Thus, the number of new full-time farms which can be developed successfully in the early postwar years will depend upon the need to supply local markets. With expansion of industries and stabilization along permanent lines, many of the seasonal and migratory industrial workers probably will wish small farms for part-time farming.[8]

Another potential source of farms for veterans is by irrigation of new land, both private and publicly owned, in the publicly-financed reclamation projects now under construction or authorized for construction, such as the Columbia Basin, the Central Valley of California, and various other areas in the 17 western states. Some new farms can be developed also by drainage and clearing of suitable land in the central and eastern states. Considerable areas of the land which could be developed by draining and clearing are in organized drainage and flood control districts and already have some of the necessary public facilities installed. If construction of necessary facilities, such as reservoirs, ditches, roads, etc., is completed and funds provided for farm development, several thousand new land farms can be created in the next few years, probably as many as 40,000 to 50,000 in the next 5 years. It will require several years of work, however, to bring new land farms to a stage of full production. Construction of the needed drainage and irrigation facilities, also, will provide means for improving many existing farms by draining land and supplementing water supplies.[9]

Additional factors influencing the number of farm opportunities should be recognized. One is the fact that with the expanded use of labor-saving farm machinery, the area of an economic-sized family farm unit is increasing, thereby reducing the number of such farms in the total agricultural plant. Likewise, there is the continuing trend in some areas toward large-scale farming made possible by improved technology. This large-scale farming means that there will be less land available for family-sized farms. This trend has been noticeable over a long period and has been accelerated in recent years. Another is that, with the use of improved agricultural technology, crop production likely to be needed in the reasonably near future can be obtained from the same or perhaps a smaller acreage than is now in cultivation.[10]

A third important factor is that land prices in many areas are at or rapidly approaching a dangerous level if the farm is to be paid for out of farm income and a satisfactory living maintained. Much of the rise in land prices during the war was, of course, justified by the increased farm earnings. After the war, however, the extraordinarily high farm earnings seem destined for early downward adjustment. The increase of farm land prices, nevertheless, continues and, to an important extent, this in-

[8] P. V. Kepner and L. T. Oldroyd, *Agriculture in Alaska*. U. S. Dept. Agr. Ext. Serv., February 1945.

[9] "Farm Opportunities: Prospects, Problems, Policies," pp. 7-8; H. A. Steele, "Postwar Land Settlement Opportunities in the Northern Great Plains," *op. cit.*, pp. 415-18; and other similar recent studies.

[10] S. E. Johnson, "Production Adjustments—1945 and Postwar," address at 32nd Annual Outlook Conference, Washington, D. C. November 14, 1944, pp. 8-13; and "Postwar Agricultural Policy," pp. 13-17. *Report of the Committee on Postwar Agricultural Policy of the Association of Land Grant Colleges and Universities*, October 25, 1944.

crease is traceable to the activity of non-farmer speculators. The least we can do for the men in the armed forces is to stop the artificial building up of land prices through speculation; by so doing, we can give them a better opportunity to obtain a farm and a home at prices compatible with security of farm ownership. The Department of Agriculture has recommended the enactment of a resale gains tax, designed to eliminate much of the short-term speculation in farm land.[11] Such a measure would be not only a fundamental help for the veteran seeking a farm during the next few years, but it would also contribute to the future prosperity and stability of American agriculture and of our whole economy.

Many veterans who lack capital, but have experience, are likely to find renting a good farm preferable to purchase while land prices are abnormally high.[12] Limited funds invested in machinery and livestock will give a better return than they would if tied up in land at inflated values. Livestock, equipment, and farm supplies, likewise, are high in price. Large-scale farm purchases at inflated values left thousands of farmers and veterans in serious financial difficulties for years after the first World War. This unpleasant recent experience of farm foreclosures, deterioration of land and improvements, and lowered living standards is well known and emphatically should not be repeated after this war.

Demand and Supply

Although the demand for farms in the next few years cannot be estimated accurately, it very likely will be materially greater than the supply of good farms available. This is a normal situation. During the last two decades the farm population produced almost double the number of boys needed to provide workers to operate the farms. Normally two out of five rural farm youth seek off-farm employment. In 1944, in spite of the heavy loss of young men from farms because of the war, there were still enough young men and boys on farms, aged 15 to 24, provided they all wish to stay on the farm, to replace the older men who will cease farming through retirement, old age, or death during the next 10 years.[13]

In addition to returning veterans and farm youth now on farms there will be some war workers who will wish to farm after the war. Very little definite information is available on the demand for farms by persons in war jobs. It is known, however, that significant numbers of war workers are buying land, especially in areas near war industry centers. Some are buying land in poor areas at some distance from places of employment. Thus, it is likely that many war workers plan to return to farms in case nonfarm jobs are not available. Many also are thinking of part-time farming and rural residences while keeping off-farm jobs.

With a high level of employment and a high level of income and trade the demand for farms likely may not greatly exceed the supply of good land available for sale or rent. However, if there is serious unemployment, the pressure on the land will likely increase and may cause subdivision of some farms into too-small units; reoccupancy of poor and abandoned farms; and encourage at-

[11] *Annual Report of the Secretary of Agriculture*, p. 94. U. S. Dept. Agr., Washington, D. C., December 1, 1944.

[12] V. B. Hart, "War Veterans Want Land," *Farm Economics*, (Ithaca, New York: Cornell University Press, 1945), p. 3720.

[13] Conrad Taeuber. *Replacement Rates for Rural Farm Males Ages 25-69 Years, By Counties, 1940-50*, pp. 1-3. Bur. Agr. Econ., December 1944; and Eleanor H. Bernert, *Volume and Composition of Net Migration from the Rural Farm Population, 1930-40*, pp. 1-8, Bur. Agr. Econ., January 1944.

tempts to develop new farms in poor land areas.

Farm land development and improvements may be resumed after the war, at near the prewar rate in areas where land is suitable and public facilities have been installed.[14] Although it would be unwise, and unfair to veterans themselves, to set up farms solely because people wanted them, an integrated program of technical aid and credit for farm improvement and development of good land on existing farms as they become available for lease or sale, and on suitable new land, can help, at least, to meet the needs of qualified men for farms.

In attempting to estimate the demand for farms and the supply of farms available to new operators after the war, it is recognized that such estimates represent possibilities largely from the standpoint of individual farmers. They are based chiefly on physical factors, comparative costs of farms and of land development, the reduced labor force now on farms, the desirability for improvement of farms, and the stabilization of agriculture in existing farm areas.

During the first 5 years or so after the war, the Department of Agriculture estimates that about 1 farm in 7, or around 800,000 to 900,000 farms will become available from all sources, including units which are too small to be economic for full-time farming, for new farm operators.[15] In addition to farm boys reaching maturity and an unknown number of returning war workers, it has been estimated, based on the Army survey, that about 900,000 veterans will be seeking farms to operate on a full-time basis and possibly 500,000 will be seeking part-time farms. This does not mean, however, that opportunities will not exist for veterans. Many fathers are waiting for their boys to return to take over the home places; and the veterans are likely to have as good, if not better, chances as many others because of government assistance to get farms that enter the competitive market.

In addition to opportunities to become farm operators, there will probably be some half to three-quarters of a million nonoperator jobs in agriculture available for returning veterans and others. These work opportunities will arise as women, youths, and even children who have worked on farms during the war return to their normal pursuits. Because the work capacity of these temporary workers is generally less than that of young adult males, the number of such workers replaced will be greater than the number replacing them. In many cases the replacement will be made by returning sons; in many other cases men will be hired to replace persons temporarily in the labor force during war time.

The Army survey mentioned above indicated that relatively few veterans, perhaps around 100,000, desire jobs as hired farm laborers after the war. Because of the keen competition for farms that veterans are likely to face from youth maturing on farms and from war workers, some veterans now hoping to become farm operators after the war may have to accept jobs as hired workers if they are to be engaged in agriculture. Also, some veterans may wish to work for a time as farm laborers before assuming the responsibilities of operatorship.

Policies for Helping Veterans get Established on the Land

As veterans are now returning to civilian life, and as some of them are

[14] H. R. Tolley, "Probable Trends in American Food Production After the War," p. 4, address before 58th Annual Convention of Association of Land Grant Colleges and Universities, Chicago. October 24, 1944.

[15] "Farm Opportunities: Prospects, Problems, Policies," p. 10.

interested in farming, the problem of their reestablishment is no longer a postwar matter; it is of immediate concern to us. To this end, policies should be shaped and integrated to meet the various needs of veterans in the light of their abilities and experiences, the opportunities on land, and of desirable policy for wise land use.[16] Policies to help veterans become independent and successful farmers might well be considered in relation to policies on publicly-owned lands; policies relating to privately-owned land; and certain over-all types of action that benefit new farmers.

Policies on Publicly-Owned Land. As has been pointed out, the federal government is the owner of some good farm land. A substantial part of this land should be made available in family-sized economic units to returning veterans who intend to operate them and should not be thrown on the market for speculators and thus indirectly become available to the veterans at excessive costs. As military land becomes surplus and is available for sale, a policy of selling an individual tract of a family-sized economic unit to a previous owner who desires to repurchase and farm it should be followed. Units not purchased by such former owners might well be made available to veterans who intend to operate them personally as farms. It is suggested that existing legislation relative to disposal of surplus military land and settlement land and farms controlled by the Farm Security Administration be changed to insure that more of this land be available to veterans at reasonable prices, rather than open to all land buyers.[17] To develop much of this military and other publicly-owned land into family farm units for veterans or others frequently will involve unusual costs often beyond what any individual can afford to pay. These costs should in part be borne by the government. Frequently, in addition to construction of buildings, fences, and means for supplying water, there will be need to build roads, power and telephone lines, to provide drainage, and in some cases to remove obstacles placed on the land, fill ditches, trenches, and to level land subjected to military use.

Publicly-owned lands suitable for farming could be made available for farms for veterans more readily and with less disruption to farm communities and with less effect on the land market than a large program for purchase of privately-owned farms and their transfer to veterans. In view of the availability and the other advantages named it is suggested that: (1) surplus military land suitable for agriculture be redeveloped into family-sized farms and ranches and high priority given in their purchase by veterans at long-time earning capacity values; (2) settlement land and farms now being sold by the Farm Security Administration be set aside for improvement and sale to veterans; and (3) preference provisions be extended and strengthened to assist veterans in acquisition of farms on public and other lands improved by reclamation projects.

Policies on Privately-Owned Lands. The situation is different with respect to veterans obtaining privately-owned land than it is for publicly-owned land. On privately-owned land there is no way of preventing the competition of all other persons desiring to buy or rent farms. Privately-owned land can be purchased or leased only as it becomes vacant and

[16] C. C. Taylor, "Veterans and Agriculture," *op. cit.;* and Robert England, "Soldier Settlement Policy: The Oldest Rehabilitation Prospectus," *Journal of Land & Public Utility Economics*, pp. 294-98. November 1944.

[17] John D. Black and Charles D. Hyson, "Postwar Soldier Settlement," *Quarterly Journal of Economics*, p. 15, November 1944.

is offered through the normal processes of sale or rental. This procedure necessarily requires more time than in the case of publicly-owned land, and thus a program must be spread over a period of years to reach many of the veterans who eventually may wish to obtain farms.

Consideration should be given to the need for making available new land or improving farming opportunities in established farm areas where, by irrigation, drainage, or land clearing, new farms could be provided and existing farms improved. The rate of projecting such developmental work should be adjusted to the total need for agricultural land as measured by the market outlets available or predictable at any time for the reasonably near future.[18]

Where it is evident that there is justification for such developmental work, the government should stand the public developmental costs over and above a reasonable normal value for agricultural purposes of lands thus improved. Where such developmental work is done on government-owned lands, veterans should be given first priority in the acquisition of family-sized economic units on tracts thus developed.

In cases where large areas of undeveloped privately-owned lands suitable for farming are substantially benefited by irrigation, drainage, and flood control works built at public expense, the government would be justified in taking steps by legislation and administrative action to insure that part of the benefits thus created were received by veterans and other non-landowning farmers. This could be done by either of two methods: (1) purchase of the land before the improvements were installed at its unimproved value and resale in family-sized tracts to veterans and farmers who did not own family-sized farms; or (2) setting appraised values on the land for resale purposes before the improvements were made and requiring that the land held by owners in excess of family-sized farms suitable to the area be sold in family-sized units to veterans and other farmers who did not own farms.[19]

While organized veteran colonies should be avoided because chances of success are greater by infiltration settlement among other people, veterans, nevertheless, should be free to locate voluntarily in areas being improved at public expense or in other areas where there are opportunities. However, preference to individual veterans in locating in areas being developed by public funds is desirable.

Assistance should be given veterans in buying and leasing privately-owned farms by the following means: (1) by providing long-time credit with low rates of interest and repayment arranged in proportion to income for purchase, improvement, and equipment of farms through existing farm credit programs and pending legislation governing them. This could be done by (a) expansion of the federal land bank credit program and extension of the Commissioner loan program, especially loans for purchase of farms and improvement of land and buildings, and by federal land bank loans up to 65 per cent of the appraised value of farms as now permitted by the recently enacted law amending the Federal Farm Loan Act and related legislation, Public Law 98; (b) and by expansion of the Farm Tenant Purchase loan program by continuing the in-

[18] Claude R. Wickard, "Water Policy in Relation to Western Agriculture," *Agricultural Engineering*, April 1945, address before American Society of Agricultural Engineers. Washington, D. C., February 9, 1945. Also, "Postwar Agricultural Policy," *Report of the Committee on Postwar Agricultural Policy of the Association of Land Grant Colleges and Universities*, October 25, 1944, pp. 45-46.

[19] Reclamation Act of 1902 and subsequent amendments.

creased authorization for loans over the next few years with increase in the size of loan permitted to tenant farmers so as to meet the needs of tenant farmers and of veterans in acquiring adequate family-sized farm units in all areas of the country; and (c) by utilization of the guarantee of a part of loans for purchase, improvement, and equipment of farms as authorized under the G.I. Act, with increase of such guarantee up to 50 per cent of the value of a family-sized farm to be operated personally, and supplementing with enough technical assistance to insure wise use of the loans and their repayment.[20] And (2) by providing a public appraisal service to assist veterans and others by appraising family-sized and part-time farms they are seriously considering buying to operate personally.

Establishment of a public appraisal system which would be available to those desiring to purchase farms would be very valuable to veterans not having the advantage of the service of a land bank appraiser either through obtaining financing from the Farm Credit Administration or under the loan guarantee provision of the Servicemen's Readjustment Act of 1944. Such a service should be available, with proper safeguards, for use of all those desiring to utilize it and not merely for the benefit of veterans or borrowers from the Federal Land Banks.

Existing legislative acreage limitations for supplying water to new family-sized farms on irrigation projects financed by public money should be continued with modification where necessary to make them practical and effective. The situation respecting publicly-financed drainage and flood control projects is comparable and acreage limitations should be applied to new land development in such areas.

Whatever is done to assist veterans to get established in farming should be in accordance with good land policies, that is, policies which encourage improvement, conservation and use of the land and water resources of the country in the interest of the people, and a wide distribution of family-sized farm ownership among the operators.

[20] For an analysis of the provisions of the "G.I. Act" respecting guarantee of farm loans, and for alternative sources of loans for veterans, see: J. D. Black and C. D. Hyson, "Postwar Soldier Settlement," *op. cit.*, pp. 20-27; and Robert England, "Soldier Settlement," *op. cit.*, pp. 289-93.

Garden Cities and the Metropolis

By LLOYD RODWIN*

EBENEZER HOWARD once remarked that when he conceived the idea of Garden Cities, practically no one had any "conception whatever of regional planning."[1] That view was expressed a quarter of a century after he had written "Garden Cities of Tomorrow,"[2] an interval which partly explains his shift in orientation and emphasis. "A colossal mistake" might be made, he came to believe, if, in starting new towns, the importance of their interrelationships was not sufficiently recognized.[3] Howard actually never carried the analysis very far. Scant consideration was paid to the nature and extent of the interdependence involved. Likewise, followers of Howard seeking to curb metropolitan expansion and to decentralize our cities have generally overlooked or failed to explore such questions.

Fear of modern war has since tended to obscure this and related problems. A whole new crop of converts to the anti-megalopolitan ideal is emerging. Events seem to confirm their thesis, too! In England, warnings had been issued by gloomy writers and by the Barlow Commission[4] that decentralization was essential for safety from air attack. Not much later the "blitz" struck London. Garden City advocates thus gained strong assistance from an unexpected quarter in their jeremiads against the metropolis.

Yet it is a striking fact that the impressive County of London Plan[5] prepared by Forshaw and Abercombie does not advocate any serious program of decentralization *on the grounds of strategy*. Not that the authors are unmindful of the dangers of air attack. Aside from the fact that Abercombie, as a member of the Barlow Commission, was in a position previously to hear the secret testimony of the military experts, the searing experience of London provided a very close and up-to-date case study. Except for certain fire preventive measures, the planned decentralization proposed was more of a recognition of past and present structural trends and an attempt to correct the evils of congestion than anavowed precaution against air attack. What was intended, moreover, was largely controlled infiltration into the outlying areas of London, not a policy of scatteration or dispersal to the remoter sections of the realm.

Among the chief problems facing London, according to the County Plan, were congestion, slums, inadequate and maldistributed open spaces, indeterminate zoning, and sprawl, if one includes the London region. Note that safety from air attack is neither emphasized nor even mentioned. Mark again that these requirements of the London-of-the-future were developed in the midst of war and air attack.

There is, of course, no reason to assume that in the future large cities (particularly if they perform functions vital to the national economy) will not often

* Research Assistant, Department of Economics, University of Wisconsin. The writer is indebted to Professor John M. Gaus for liberal assistance and for many provocative suggestions.

[1] "Planning Problems of Town, City and Region," *Papers and Discussions at The International City and Regional Planning Conference*, New York City (Baltimore, Md.: Norman Remington Co., 1925) p. 8.

[2] Ebenezer Howard, *Garden Cities of Tomorrow* (London: Swan Sonnenschein & Co., Ltd., 1902).

[3] Planning Problems of Town, City and Region," *op. cit.*, p. 8.

[4] *Report of the Royal Commission on the Distribution of the Industrial Population*, His Majesty's Stationery Office, January 1940 (hereafter referred to as the Barlow Report).

[5] J. H. Forshaw and P. Abercombie, *County of London Plan*, (London: Macmillan and Co. Ltd., 1943).

prove vulnerable to air attack and hazardous for civilian occupants. No one as yet fully knows what the robomb portends. Also, reappraisal of the aftermath of precision and area bombing may still prompt our military experts to recommend drastic urban surgery. For the present, however, these are speculations only. What is clear is that defense considerations may increasingly underscore or deflect city planning decisions.

Urban concentrations have also proved to be tough strongpoints, now as in the past. On the European continent and in Asia, large cities still remain integral features of a nation's depth defenses and it is far from certain that military expediency would recommend or even tolerate dispersal. What greater symbols of successful defense has this war evoked than London, Moscow and Stalingrad? War is still not a decisive argument against huge metropolitan areas.

Note: This article was prepared before the possibilities of atomic bombing had been publicly demonstrated. There is no longer any question about the effectiveness of this form of warfare. However, the main argument in the above paragraph seems even more valid. Our capacity literally to wipe out cities is so effective that it is idle to argue in favor of any special form of urban structure as a safety measure against air attack.

Large and compact communities have considerable peacetime advantages also. Reasonably full employment, agricultural prosperity and other postwar goals have been shown in recent studies to be intimately related to movements of industry, population distribution and the structure of our communities. Economists and urban specialists have studied how cities have grown and declined and have analyzed their functions within our economy. Factors other than inertia are being credited for the city's essential size and characteristics. These findings have shed much light on Ebenezer Howard's plan for Garden Cities which, despite many profound insights, has failed to provide a practicable ideal. If urban theories are ever translated into future realities it will be only because the strong as well as the weak points of our present community patterns are clearly appreciated.

The gist of Howard's program lies in his dream of promoting healthy communities of modest size each owning its own land and surrounded by green areas beyond which other communities might be formed. Metropolitan areas like London were to be emptied of their excess inhabitants. A balance was to be struck between home and industry as well as between town and country. Residents would thus be able to enjoy the advantages of access to the country and closeness to work while, nearby additional markets would be available to farmers. Howard looked at this proposal as a positive step in implementing Bellamy's Utopia, which had moved him profoundly, and as a sure means of establishing the immense spiritual improvement that an ideal environment could exert on man's moral nature.[6]

Thanks to Howard's persistent and persuasive personality and the partial truths underlying his program, many of these ideas or variations thereof have since become routine cogs in the mental equipment of most city planners. Consider, for instance, the importance attached to limited size and growth in the County of London Plan; the pervasive acceptance of greenbelt areas and open spaces surrounding pleasant communities and neighborhoods reasonably close to areas of employment; and the debates on land policy now taking place with the framing of bills in Congress and Parlia-

[6] E. B. Carter, "Sir Ebenezer Howard," *Dictionary of National Biography* (London: Oxford University Press, 1922-1930) pp. 434-437.

ment for postwar urban redevelopment. Indeed, we owe a large debt to Howard and to the energy and evangelism of his followers in the Garden City movement.[7]

Yet many flaws are now evident in the Garden City thesis, largely because Howard overlooked some of the essential tasks of the metropolis and the necessary functional and administrative interrelationships. His ideal is equally unsatisfactory in its neglect or negative interest in the problems confronting *existing* communities. Perhaps some of the crucial weaknesses may be more clearly illustrated by an examination of some of his inadequate or unrealized assumptions on rural migration, population growth, industrial location, the journey to work, comparative urban costs and municipal government and administration.

Rural Migration

Howard seemingly accepted without question the notion that migration from the countryside meant a declining rural economy. This was an evil, he insisted, which "men of all parties . . . deplored." Quoting from conservative, liberal and radical papers and leaders, he warned that cities were "sucking . . . half the life and the bone of the rural districts" and urged reformers to "back the tide and stop the migration of the people into the towns and get the people back to the land."[8] Coupled with this primitive agrarian philosophy, which has found its modern analogue in Wright's "Broadacre City" and Borsodis' "Seven-Acres," is a strong revulsion for the big city, a loathing of its effects on the health and physique of the people.

Both sentiments are strongly entrenched. Soldiers are still promised land as rewards for their services and many still deem our cities, if not modern Babylons, then as markedly artificial and inferior places in which to live or to rear children. This is not the first time that ideas "fading as truths" have "survived as emotions."[9] To dislodge prejudices so deeply rooted in a rural-minded society will not be easy.

Yet improvements in sanitation, housing conditions, health facilities and medical knowledge have steadily enhanced the livability and wholesomeness of our cities. A huge contribution has also been made by social legislation ensuring better wages and working conditions, reasonable hours and a steadily improving system of social security. Mortality statistics for the *younger* age groups in this country now favor urban, not rural areas.[10] Evidence presented to the Barlow Commission indicates that large cities are not necessarily less healthful than smaller cities, especially in light of the experience of Netherlands and Sweden.[11]

There is, of course, much that remains to be done. Whatever progress has been made is but a token of what can still be accomplished. Scientific ad-

[7] The ideas were not original with Howard. Much of his thought can be traced to Spence, George, Wakefield, Marshall, Buckingham and Kropotkin as he himself indicates in his influential little volume. But the combination of the ideas in the above form, as Mumford suggests, was Howard's creative contribution to this ideal.

[8] Lord Rosebury and Sir John Gorst cited respectively by E. Howard, *op. cit.*, p. 11.

[9] Charles Abrams, "New Social Trends in Land Utilization," *The Appraisal Journal*, October 1941, p. 336.

[10] Younger age groups include those below the age of 45. Actually, rural areas still have the edge over urban areas on the basis of span of life, largely because of the greater mortality in urban areas for those in the age groups above 45. The figures are not conclusive since they reflect only a correlation without any evidence as to causal connection with size of cities, the specific factors responsible for mortality or the innumerable variables associated with the latter factors. For an interesting statement comparing Glover's previous analysis of urban-rural mortality statistics of thirty years ago with the recent census figures, see T. N. E. Greville, "Rural Life-Span Larger than Urban," *Domestic Commerce*, August 1943. Incidentally, according to the present figures, though the rural districts still have the advantage, urban rural differences are much smaller than Glover's tables. An interesting comment along these lines may be found in the article by H. Emerson and E. B. Phillips, "The City Gains on the Country," *The Survey*, August 1929.

[11] Barlow Report, *op. cit.* p. 62.

vances, rising standards of living and greater control over our surroundings should help us banish some fictions about our urban communities. They are not necessarily less healthful than the farm. Similarly, size alone does not make them less salutary environments. If our cities are not and do not become more desirable places in which to live, it is because of rectifiable failures, not inherent defects.

Since the thirties, the evils of hapless migration have been documented and underlined in novels, non-fiction, movie films and Congressional investigations. It is all to the good that these serious maladjustments have been sufficiently dramatized to arouse mass interest and possibly action. In solving one social problem, however, care must be taken not to create another. Mobility is often a helpful shock absorber for unemployment.[12] Other advantages that migration makes possible between rural and urban settings as well as between different sections of the country are new opportunities, energizing experiences, intellectual ferment, facility in adaptation, erasure of caste, etc.[13] The history of Europe and America attests that migration is not altogether an evil. More often it is a symptom of vast structural transformations within society and it may be wiser to deal with the problem as such than to seek an ephemeral and short-sighted stability.[14]

Certainly rural migration is a case in point. Many may be startled by the proposition that a progressive agricultural economy is not only synonymous with but actually requires a declining farm population. Yet that very fact is being increasingly accorded recognition among our rural social scientists.[15] With increased technological skills and productivity less people will be required to produce even more food and agricultural products. To tie people to the land where they cannot be efficiently absorbed is to legislate a depressed standard of living for the whole community, especially those engaged in agriculture.

Instead of "backing the tide," it is important to understand its implications, prepare for the necessary readjustments and recognize that new opportunities must be made available for those who prefer or will be forced to leave. Industrialization, perhaps the creation of new communities, and certainly the growth of already established areas will help in absorbing the surplus or badly situated agricultural population. These are some of the vital ends sought in plans for the industrialization of the South (or of such undeveloped countries as Mexico, China, and India) with all that such programs promise in the form of a rising standard of living. Unlike Howard, then, our approach today must be one of acceptance of rural migration as a fundamental starting point for our thinking. "No general 'Back to the Land' movement can be part of a truly progressive postwar policy, in spite of the sentimental appeal such a program can

[12] The importance of mobility within communities will be discussed in more detail elsewhere in this paper.

[13] See the provocative article by P. H. Landis, "The Case for Internal Migration," *Survey Midmonthly*, March 1943, pp. 74-76.

[14] "Without great migratory movements we cannot possibly redress our sectional inequalities, or use our human and material resources to the best advantage. In a world of changing opportunities, moreover, there must always be many for whom the ability to move offers greater security than even the most favored locations. It should therefore be a cardinal point of social policy to encourage mobility and give it surer purpose and direction." Carter Goodrich, *Migration and Economic Opportunity* (Philadelphia: University of Pennsylvania Press, 1936) p. 672.

[15] Report of the Committee on Postwar Agricultural Policy of the Association of Land-Grant Colleges and Universities, October 1944, p. 5. See also: L. A. Salter, Jr., "The Challenge of Agrarpolitik," *The Journal of Land & Public Utility Economics*, August 1944, pp. 252-255; *Report of the Committee on Land Utilization in Rural Areas*, (London: His Majesty's Stationery Office, 1942), pp. 100-108; and T. W. Schultz, "Two Conditions Necessary for Economic Progress in Agriculture," "*Canadian Journal of Economic & Political Science*, August 1944.

always have in a country still nostalgic for its lost frontier."[16]

Population Changes

Within the past century, this country has produced about 250 cities with a population of 30,000 or more.[17] But the chaotic era of city building reached its climax long ago. With the rate of population growth tending to level off both in Europe and in America, we are less concerned with the problem of the creation of cities. True, many new ones will emerge through interregional migration of industry and population, resource development programs and new inventions, processes and products. For better or worse, however, the major job of the future is that of improving the cities we have and hence of dealing with existing social, economic and political facts.

Howard, on the contrary, wanted to work on "virgin soil"[18] thinking that it would solve the problem of compensation and allow complete freedom in reconstruction. This tactic, he also argued, would split the "selfish vested interests" of land and capital, many of whom would be willing to stake their fortunes on the new communities. Still other groups, he felt, would probably bow to the inexorable march of progress. These defections plus the strength of the workers and farmers united in favor of the program, would presumably render opposition ineffectual. Not only did Howard misjudge the momentum and resistance of the existing forces, but he was unable to foresee the decline of the rate of population increase and its ultimate implications for urban expansion.

The consequences of these changes for the theory of Garden Cities are reflected in two interesting developments. First, the plan proposed by Howard and intended as a helpful guide to the technique of building new cities, ironically enough, has become the basis of programs for decentralizing our large urban agglomerations.[19] That is, the principle of encouraging new community spores surrounding the parent city is accepted. Satellite areas beyond the central city's borders are being anticipated, even promoted. But, as in the case of the London County Plan, the "great wen" is serving as a substitute for the parent garden city. True, Howard contemplated siphoning out the population of London; but his plan of development, originally and fundamentally intended for Garden City growth has become the fulcrum for preserving and reconstructing a London more than twice as large as the metropolis he deemed too big.

London proper is to be subjected to a general facelifting operation. Attempts are being made to curb the growth of the city, to add to and improve the distribution of open spaces and, if possible, to revive indigenous neighborhoods and communities, ringing them with green areas or major traffic arteries, in an effort to retain local individuality within an integrated whole. Such remodeling may not suit the purist; but it is a rough measure of what might be done until some of our would-be city planners not only fashion their clay like the fabled Pygmalion—but also instill it with life.

[16] Catherine Bauer, "Cities in Flux," *The American Scholar*, Vol. 13, No. 1, 1943-44. See also C. Goodrich, *op. cit.*, chap. XII, "Toward a Migration Policy;" also P. Samuelson, "The Business Cycle and Urban Development," included in "The Problem of the Cities & Towns," *Conference on Urbanism* (Cambridge: Harvard University, 1942) pp. 7-11.

[17] Mabel Walker, *Urban Blight and Slums* (Cambridge: Harvard University Press, 1938), p. 351.

[18] E. Howard, *op. cit.* Said Howard: "The simple issue to be faced and faced resolutely is—Can better results be obtained by starting on a bold plan on comparatively virgin soil than by attempting to adapt our old cities to our newer and higher needs. Thus, fairly faced, the question can only be answered in one way; and when that simple fact is well grasped, the social revolution will speedily commence." p. 134.

[19] Thomas Sharp, *Town and Countryside* (London: Oxford University Press, 1933) pp. 171-2.

Decaying economic regions present another portentous omen of the population trends. This is reflected, for example, in the growing concern for population concentration in a few areas and the crystallization of efforts, at least in England, to control that concentration for the benefit of other sections whose sustenance or economic base is being depleted. In the past, when London grew, other areas grew as well; but now with population changes (coupled with sharpened competition in international trade, the emergence of new and light industries, the expansion of the service trades, etc.) depressed areas develop instead.

When Sir P. Malcolm Stewart, first Commissioner for the Special Areas in England, argued in favor of discouraging further industrial development round London, it was not so much to make London more liveable and manageable, as to preserve and build up other parts of the country. Similarly, PEP objects to the development of new communities while there is a geographical shortage of economic opportunities within the existing economy. It explains that because " . . . there are not enough mobile industries to go round, it will be impossible to satisfy the employment needs of existing individual communities, but that it may be possible to provide a better balance if several communities are considered together."[20]

American cities pose other difficulties. So much vacant and suitable building land is actually available within their range or boundaries "that only a small fraction of it can be used to meet the demands of the present and future population."[21] Reclaiming abandoned or decadent areas is undoubtedly one of our most pressing postwar problems.

Should it surprise us then, if with the exception of occasional demonstration towns, Howard's proposals and those of his successors have little chance of being applied; and that drastic overhauling of Garden City thinking is required to serve present and reasonably foreseeable possibilities?

Industrial Location

To read Howard's plans for establishing new communities, one might suppose that Garden Cities could be located anywhere. Indeed, Mr. Osborn, one of the principal Garden City exponents, contended in a memorandum prepared for the Barlow Commission that the site for Letchworth, the first Garden City founded on Howard's principle, was deliberately chosen without reference to any special advantages in order to test the theory.[22] In point of fact, though Letchworth is outside of London's metropolitan orbit, it was still sufficiently close to attract a few of London's industries and to profit therefrom.[23] More important is it for us to observe that the site was not consciously selected to test the theory, but that this error in judgment was but a consequence of a theory which ignored the importance of location.

In recent years we have learned more about the crucial importance of location

[20] *PEP, Planning: Location of Employment, Political and Economic Planning*, No. 224, August 25, 1944 p. 13. Political and Economic Planning is an independent, nonparty research group in England which prepares a fortnightly broadsheet on planning as well as occasional full scale reports on a variety of economic and social problems.

[21] Charles Abrams, *Revolution in Land* (New York: Harper and Bros., 1939), p. 278.

[22] "The group who started Letchworth in 1904 were so confident of the essential soundness of the idea, that, in selecting the site, they gave the enterprise no adventitious advantages of any kind. Indeed, they may be said to have carried the scientific temper of their experiment so far as to load the dice against it. They chose what was then a remote site where there was no tendency whatsoever to spontaneous development" See *Minutes of Evidence* taken before the Royal Commission on the Geographical Distribution of the Industrial Population, 20th Day, May 5, 1938, p. 620. Note also the approval of this statement by Gilbert and Elizabeth McAllister in *Town and County Planning* (London: Faber and Faber, Ltd., 1941), p. 137.

[23] C. B. Purdom, *The Garden City* (Letchworth: Temple Press, 1913), pp. 145-

for prosperous industrial developments. Attention has been focussed on the problem by the spreading of depressed areas in the northern regions of England, by the stark reminders left by ghost towns shriveling because of weak economic foundations, by the migration of textile and shoe industries in this country from north to south, by the efforts to industrialize the South as well as other areas and by the so-called "decentralization" movement. Interest in location economics has been varied, ranging from pure theory and history to industrial management and social control. Among the conclusions emphasized by current studies[24] are the dominating function of the market in determining site location,[25] the growth of service trades, and the declining importance of extraction industries, particularly in terms of population employed.

Noting these impulsions within the industrial structure is important since they help to explain why urban concentration has occurred, and they caution us against hasty thinking on the subject of dispersal and Garden Cities. Because industries tended to shift from areas of high rents and taxation, Howard assumed that industries would be able to establish themselves wherever cheap land and rates were obtainable.[26] Now it is becoming clear that these factors are relatively unimportant for most industries. The bulk of the shifts, if they occur, will usually be within the proximate area, though outside the corporate limits of the city. That accounts for some of the distinctions framed clearly distinguishing movements to the periphery, diffusion within the surrounding counties, dispersal into other regions and wholesale migration.[27]

Quite some time elapsed before these trends were recognized and understood by the leadership of the Garden City movement. Some curious anomalies can be cited illustrative of this lag. Purdom, in his book on Garden Cities, quotes some factory owners who had replied to a questionnaire asking why they had settled in Letchworth. Though many of the answers emphasized the nearness of Letchworth to London, Purdom misses the full implication of this fact in his analysis of the city's advantages.[28]

---

[24] Some of the recent and more important investigations are: E. M. Hoover, Jr., *Location Theory and the Shoe and Leather Industries*, (Cambridge: Harvard University Press, 1937); S. R. Dennison, *Location of Industry and Depressed Areas* (London: Oxford University Press, 1939); C. Goodrich, "Migration and Economic Opportunity, *op. cit.* ch. VI; "The Changing Pattern of Industrial Location" by D. Creamer; R. M. Haig, "Toward an Understanding of the Metropolis," *Quarterly Journal of Economics*, February and May, 1926. See also Lloyd Rodwin, "Two Approaches to Industrial Location Analysis," *Journal of Land & Public Utility Economics*, February 1945, pp. 23-33; and the reports of the NRPB, PEP and the Barlow Commission cited in this paper.

[25] For example, the Barlow Commission concludes that "in the absence of decisive natural factors such as the existence of coal or of an adequate supply of suitable water, industries tend to be located within easy reach of the market. The industries that have shown a relative expansion since the war are either local industries or industries in the location of which natural factors have not been decisive." *op. cit., p. 48.*

[26] Mumford, in fact, seems to believe "ruralization of industry" is desirable. For example, he cites Kropotkin's "bold prophecy" and adds that " . . . the other side of the industrialization of agriculture, which has been so rapidly going on alike under capitalism, cooperation and socialism, is the ruralization of industry." L. Mumford, *The Culture of Cities* (New York: Harcourt, Brace & Co., 1938), p. 340. Later in the volume Mumford declares that "to speak of division of agricultural areas, industrial areas, urban areas—will be to refer to an increasingly moribund division of labor. Rural regions will attract industry, foster a cooperative way of life and promote biotechnic urbanism; while industry must, for the sake of life efficiency seek a wider rural basis. Each village nucleus will thus be the embryo o a modern city, not the discouraged, depauperate fragment of an indifferent metropolis." p. 342. F. L. Wright takes an even more extreme position on the ground that modern technological developments will result in "the disappearing city." F. L. Wright, *The Disappearing City* (New York: W. F. Payson, 1932). Both Mumford's and Wright's position rest to some extent on non-sequiturs. Because electricity, the truck, and other developments have freed industry from abject dependence on the site is not sufficient basis to conclude that dispersal will occur. Other factors like the market are, and for a long time to come probably will be, of dominating importance.

[27] C. Goodrich, *Migration and Economic Opportunity* (Philadelphia: University of Pennsylvania Press, 1936), ch. VII; see also S. Helburn, "Location of Industry," *Journal of Land & Public Utility Economics*, August 1943, p. 253-63.

[28] C. B. Purdom, *op. cit.*, pp. 145-147.

Even more striking was an advertisement in *Town and Country Planning*, the official periodical of the Garden City movement. It was an appeal to entrepreneurs, the aim of which was to attract industries to Letchworth by stressing the enormous advantages of the London market.[29] Just contemplate that fact! Here were the evils of the "great wen" being used as a necessary and permanent bait to build the Garden City of the future.

Today, however, there is no doubt that proper location is keenly appreciated. In his testimony before the Barlow Commission, Sir Edgar Bonham Carter, Chairman of the First Garden City of Letchworth, pointed out that Letchworth was approximately thirty-five miles from London whereas most firms usually settle within a fifteen-mile radius. Many of Letchworth's development difficulties were attributed by Carter to this fact. Replying to a direct question, Sir Edgar frankly agreed "that if Letchworth were to be planned again, it should be nearer London."[30] Similarly, Sir Theodore Chambers, chairman of Welwyn Garden City Co., emphasized with regard to Welwyn, the Second Garden City promoted at Howard's instigation, that "there is little doubt that proximity to London has been an important influence in promoting its growth;" and a little later he concurred with Barlow's conclusion that " . . . the opportunity for the development of the Garden City . . . is limited to somewhere within reasonable distance of *a big community*."[31]

Once again, modification of the Garden City hypothesis seems warranted, this time as a result of evidence culled from the requirements of the market. Balanced satellite communities near the borders of the metropolis appear to allow more plausible patterns and seem to be gaining adherents. Not Letchworth, but Welwyn and Wythenshawe[32] are looked upon even by Garden City proponents as the more hopeful types of development. Belated recognition is finally being paid to the persistent facts of industrial location; but unfortunately there is much yet that we do not know. Despite a plethora of recent studies, our knowledge is still sketchy and discursive.[33]

Journey to Work

Howard hardly bothered to argue the merits of the journey to work, so convinced was he of its utter lack of justification.[34] Increasingly wearisome travel was quite naturally linked with the evils of hasty and amorphous expansion of enormous urban centers like London. Permanent necessity of riding to work certainly was not the least important of the factors responsible for the deterioration of living standards.

However bad it must have seemed then, the situation has obviously worsened, judged on the basis of congestion and the loss of time, energy and money by the worker. It is equally costly to

[29] *Town & Country Planning*, Garden Cities & Town Planning Association, London, Vol. IV, June 1936, p. 97.

[30] Minutes of Evidence, *op. cit.*, p. 646.

[31] *Ibid*, pp. 646; 649-55 (emphasis by the writer).

[32] Wythenshawe is a community developed by and near the city of Manchester along Garden City lines.

[33] Though divided on the degree and area of control, all the members of the Barlow Commission were agreed in recommending only *negative* bans on sites for future industrial development. Note also Dennison's opposition to control by a Central Planning Authority in England on the ground that it is too difficult a task, with the knowledge and instruments presently available. S. R. Dennison, *The Location of Industry and Depressed Areas*, (London: Oxford University Press, 1939), ch. V.

[34] That was partly due to the fact that daily transportation was a relatively new phenomenon with causes and implications that were quite unclear. J. Crane has pointed out that "since Ebenezer Howard first formulated the English Garden City principles, about 1898, transit and automobile developments have freed residential settlements from the earlier necessity of immediate proximity to industry." This is cited by Mr. Crane as an argument for departing somewhat from the original Garden City principles tying residential settlements close to industry. See "Location Factors in Housing Programs," included in *Housing—The Continuing Problem* (National Resources Planning Board, December 1940) p. 125.

the community which has to provide the necessary transportation facilities and services of all kinds for the mushrooming peripheral areas. Howard's reaction in favor of communities that would abolish congestion and keep the worker's home within reasonable walking distance of employment was understandable and, with some serious reservations, is still a fundamental ideal of city planners.

Yet today, with the experience that we have of stranded communities and labor market areas (particularly in war production centers) and faced as we are by the very urgent problem of reasonably full employment, the advantages of travel and commuting possibilities are being more thoroughly explored and reappraised. Part of the responsibility for burdensome and unnecessary trips lies in the failure to control development at the outskirts of the city, poor location of factory and residential sites, unsatisfactory transportation facilities and other incidents of poor or no planning. To some extent, the difficulties can be reduced by palliatives like a five-day week, staggered working hours, and better train schedules.[35] More long-range improvements can also be effected by foresighted and intelligent guidance of urban growth and systems of land use.

Granting that necessary travel could be cut to an efficient minimum through these efforts, the daily journey minus congestion would still be indispensable for the functioning of the economy. For employers, it means a very welcome mobility of labor as well as a flexible labor market. Expansion of industries for our war effort would have been literally crippled by shortages in housing accommodations and labor unless able to rely heavily on a wider labor and housing market; and this would be clearly impossible without resort to the journey to work.

Comparable elasticity is possible during peacetime when industries find it necessary to expand or contract, as for example, in seasonal operations. Howard's program, to the extent that it presupposed keeping the size of cities modest if not low, tacitly assumed a small and stabilized labor force. But these limitations are simply incompatible with the present needs of modern industry. Staunch advocates of Garden Cities like Chambers and Carter now readily concede that larger cities are obviously needed for industries requiring a huge labor force. There is also a greater willingness to recognize that the size of future cities should correspond to the functions performed, rather than to *a priori* predilections.

For workers, the journey to work opens the prospect of different, more and better jobs. It likewise facilitates adjustment to changing circumstances such as factory relocation, residential shifts to preferred neighborhoods, flexibility for home ownership and necessary opportunities for secondary wage earners. Until our economic system or social institutions reduce these constant uncertainties, the effects have to be reflected in one's planning.

PEP, largely concerned with general employment problems, has claimed "it is even in theory impossible to reconcile the need for a maximum variety of industry and occupation with the need for a minimum journey to work."[36] Only

[35] Kate Liepman, *The Journey to Work* (London: Kegan Paul, French Trabuer and Company, Ltds., 1944), pp. 50-60.

[36] PEP, *op. cit.*, p. 7. Mr. Blandford, Jr., Administrator of the National Housing Agency, has taken a somewhat similar position. In discussing postwar rebuilding, he has pointed out that "If we are going to have a full employment economy people must have access to jobs that will keep them busy all the time. They must have access to

(*Footnote 36 continued on page 277*)

groups of communities can furnish the flexibility required to maximize employment and stabilize the economic base of the region, or segments thereof. Within this "employment orbit" a satisfactory variety of industries and opportunities might be achieved. Government policy, of course, could be framed accordingly as, for example, in the placement of contracts, the extension of industry aids, the building of railways or the development of useful criteria for judging the mortality prospects of communities and the use of public funds for assistance or relocation.

Kate Liepman, approaching the problem from the point of view of the individual, believes the journey to work must ultimately be accepted as a necessary price paid for greater industrial stability, superior employment possibilities and a higher standard of living. Satellite communities, possessing a fairly self-sufficient social and economic life of their own, though dependent on a larger metropolis, tend to be favored solutions. This arrangement, she believes, seems to represent an optimum balance securing both the advantages available within the satellite communities such as nearby employment opportunities and the economic as well as cultural opportunities offered by a large city.[37]

Comparative Urban Costs

Lower costs of Garden Cities are another axiom usually taken for granted by its enthusiasts. Howard was especially impressed with the possibilities of lower rents, taxes and prices while subsequent followers have extended this claim to almost all phases of vital government services. There is enough truth in the charges to lend color to the criticisms, but not enough proof to sustain them.

Logically, all the advantages of municipal land ownership, whether in low rents or increased government revenues, apply to cities of whatever size and character. If rural land is cheaper,[38] the price is more deceptive, as the Garden City companies learned to their chagrin. Vacant land must be processed for urban uses and the cost of processing in the form of added utilities and services must eventually be paid. Though it may be more expedient, it is not always less expensive to buy raw land.[39]

In addition, so-called "waiting costs" of development with cumulating interest, tax and other charges must be paid while the community grows. This was one of the key factors responsible for the financial straits that almost wrecked Letchworth and Welwyn, despite the use of limited dividend capital. To pass the cost of development to a large neighboring city or the national government as is often suggested, on the assurance that those agencies can better shoulder the burden is simply to shift the risk, and possibly the bearer of the cost—but not to eliminate it!

Low density, characteristic of Garden City planning, (usually about twelve

(Footnote 36 continued from page 276)
many jobs. Only a community of considerable size can readily afford the free opportunity for full employment." See J. B. Blandford, Jr., "Rebuilding After Victory," *American Planning and Civic Annual*, 1942, pp. 226-7. Note also the similarity of Prof. A. Hansen's position cited in "The Problem of the Cities and Towns," *op. cit.* p. 31.

[37] Thomas Sharp, one of the chief proponents of this form of urban structure has called it "Sub-centralization." See T. Sharp, *op. cit.*, pp. 171-2; also T. Sharp, *Town Planning* (London: Penquin Books, Ltd., 1940), pp. 50-52; 66-7.

[38] Sir Raymond Unwin contended that it might be more expedient by avoiding compensation. Whether there would be more than negligible difference in the opposition engendered in this country is difficult to say. One may well be sceptical judging from the storm of protest raised by real estate and financial groups over USHA's picayune building program on vacant land; or the frequent spleen displayed for similar reasons in some of the present debates on urban redevelopment.

[39] Overvalued property in the core of the city is one serious exception. Methods for squeezing out these values including both peripheral building and stringent enforcement of various police regulations should help ease redevelopment at practicable costs. These alternatives may still be preferable to that of building new cites.

houses to the acre) also entails many concealed costs which are easily overlooked. By spreading the area of development, costs are increased for transportation and community services of all kinds (e.g., street cleaning, sewerage facilities, utilities, et cetera). Higher expenses are likewise incurred by many private agencies for services like milk distribution, laundry pick-ups and delivery of other kinds of merchandise.[40] As these mounting costs make themselves felt, there may be a greater willingness to confess that decent, healthy, and, perhaps even more beautiful communities are possible without clinging to rigid house-acre ratios.

Finally, to make a fair comparison, the hidden costs of wasted facilities as a result of by-passing the developed areas also ought to enter into the reckoning. It has been estimated that eighty per cent of the sub-surface utilities can be saved in redevelopment, not to mention other kinds of social capital.[41] There are also other items involved, less susceptible to cost analysis, such as the special location advantages of existing cities. It seems that the case for building new Garden Cities is not quite as obvious as some of the proponents would have us believe.

Whether smaller cities are generally less expensive is another moot question. Present cost comparisons are clearly unsatisfactory.[42] Many small communities benefit from the services of accessible metropolitan areas without sharing in the costs. Variability in services often render comparison meaningless. Suitable criteria for measuring quality, scope, efficiency and need for public facilities are still unavailable, assuming they can be perfected. Two such cost surveys sometimes discussed not only provide indeterminate conclusions, but in the absence of further information and analysis, are apparently inconsistent.[43]

In this problem of costs, as in other discussions of social affairs, many feel free to insist upon a point of view without fear of successful contradiction—or adequacy of proof! That is because precise analysis is virtually impossible as long as so many of the variables cannot be measured or controlled. When it can be argued that transportation systems may increase operating costs yet multiply employment opportunities, extend the area of government services but widen the tax base, help solve the problem of transportation but add to the possibilities of congestion, place further drain on energy and health yet enhance the possibilities for better services and a richer social life, it is clear that prejudices are being confirmed while imponderables are at stake.

Before the question of costs will be resolved, improved techniques for evaluating social services and social wants will be necessary. Wiser management of the affairs of our cities may well dispel some of the apparent confusion. But in the absence of alternatives with predictable effects, choice will tend to remain a matter of faith, accident or prophecy.

Municipal Government and Administration

Howard recommended his plan of government as sound business management. Every department was expected " . . . to justify its own continued

[40] Liepman, K., *op. cit.*, pp. 101-110.

[41] Charles Ascher, "The Problem of the Cities and Towns," *op. cit.*, p. 78. Mr. Ascher cites Ralf Eberlin for this estimate.

[42] W. F. Ogburn, *Social Characteristics of Cities*, (Chicago: The International Manager's Association, 1937), pp. 4-5.

[43] According to the Survey of Social Services of Oxford and District Life, cited by Thomas Sharp, it was found that cities of 100,000 to 200,000 are cheapest. T. Sharp, *Town Planning*, pp. 68-72); Ogburn finds that American cities of 30,000 to 50,000 require the least cost in total government services. (Ogburn, *op. cit.*, pp. 20-21). The fact that different countries are involved further complicates analysis.

existence—its officers being selected not so much for their knowledge of the business generally as for their special fitness for the work of their department."[44] What escaped Howard's attention, despite his long experience in the law courts, was that stockholders do not vote for various administrative experts and that the technicians, assembled into a committee, do not formulate and coordinate the general policies of the concern. For these reasons, it is doubtful whether the organization and administration of local government outlined by Howard would have proved satisfactory even if other parts of his program were fulfilled.

According to Howard, department heads of various government activities, such as assessments, parks, recreation, and so on, were to be selected by the people on the basis of their performance in office. Policy of a general nature bearing on the physical plan, coordination and financial control was to be determined by the central council composed of the elected officials and their chief assistants. Each community, in short, was to have a separate government run somewhat along the lines of the commission plan. The latter, incidentally, was just becoming popular then. Since the turn of the century, however, additional experience with multiple executives has brought to light many defects, among the more important of these being poor coordination, lack of centralized control and understandable inability of the public to inform itself about and to elect efficient, expert administrators.[45]

Today, however, the limitation in Howard's approach most apt to be stressed is his emphasis on the individual, isolated, self-sufficient towns.[46] For the problems that face us now are those of integration, of welding the disparate political jurisdictions into effective communities.[47] Such an expanded political framework would have been necessary even for the cohesion and coordination between the various Garden City satellites and the original parent community. Howard never clearly caught the significance of adequately distributed power and jurisdiction for interdependent communities. In commenting on the creation of new towns he indicated that " . . . for administrative purposes there would be two cities . . . " though " . . . the people of the two towns would in reality represent one community."[48] It is precisely because of this failure of independent administrative forms to cover the requirements of what is essentially a single community which accounts for many of our critical problems of local government.

Excessive concern for the independence of the new organism and for a decisive

[44] Howard, *op. cit.*, p. 71.

[45] Perhaps the scheme might have proved feasible in the small communities contemplated by Howard. Unfortunately, the experience of Letchworth and Welwyn is not too helpful because Howard's proposals were not strictly followed. Both communities are "run" by limited dividend companies which own the land but with most of the ordinary government function handled by urban district councils.

[46] One of the first clear admissions of faulty perspective was made by the editor of *Town and Country Planning*. "I am afraid," he observed, "that the Garden City Movement has itself been partly responsible for the neglect of the periphery of London. We have perhaps stressed too much the full blooded conception of the detached, isolated Garden City and we have not urged sufficiently the need for control of the suburban development on Garden City lines." See *Town and Country Planning*, *op. cit.*, p. 82; see also Vol. IV, Sept. 1936, p. 114.

[47] Civic consciousness is often stimulated in small well-rounded communities. Mumford has even suggested that there would be more possibility for the expression of these civic interests because of the greater number of opportunities and better prospects for holding office with the multiplication of communities. It is still far from certain, however, that such prospects for public service are necessarily lost in big urban centers; or that these functions may not be enriched and increased with better understanding of our neighborhoods and local communities, and the elimination of numerous overlapping ad hoc authorities. Equally important, too, is the quality and ladder for leadership which can be developed through the challenge of larger and more significant responsibilities available in the metropolitan community.

[48] Howard, *op. cit.*, pp. 129-30.

break with the original community has resulted in neglect of vital interrelationships. Subsequent thinking in the movement has tended to veer toward national controls that would puncture and loosen the concentrated areas, directing the outflow (as well as the former inflow) to new Garden Cities. Still other possibilities entertained are those of satellite development sponsored under progressive metropolitan programs; or the establishment of new communities backed by some combination program supported by various levels of local government, perhaps with private enterprise as a partner. The point is that these currents of thought have shed precious little light on the urgent question of conflicting, duplicated and fragmentary governmental units within our urban areas, or those very difficulties which will emerge as an outgrowth of these proposed satellite relationships.

Suggestive proposals like that of federation hinted at by Unwin[49] years ago have been accorded scant attention by subsequent studies. The Garden City movement is not yet thinking in terms of necessary machinery for metropolitan government and the practical forms for gearing this mechanism to the tasks that lie ahead. This, after all, is another reason, as others have persistently emphasized, why "territorial planning, the most promising and creative movement of our time has been retarded in expression and stunted in growth."[50]

Frontiers of Urban Planning

What is usable in Howard's ideal has become the framework of modern urban planning. Well integrated cities, planned land use and controlled size and growth are recognized desiderata.

Neighborhoods, communities and the metropolitan region must become places where men can develop roots and loyalties and where genuine civic interests and a rich personal development can mutually interact and enhance each other. If our cities, as Saarinen puts it, are refineries for turning agricultural areas into urban land,[51] then it is necessary to anticipate and control the character of the product and the uses it will serve. Urban land policies are now in process of crystallization and there are reasonable prospects that municipal land ownership or leasing may become available as an ordinary instrument for shaping urban form and function. Though bigness is not a curse, amorphous sprawl certainly is. Criteria and techniques for guiding this growth need fashioning. It is useless to create superhighways, wider roads and countless mechanical contrivances to solve expensive and dangerous traffic problems unless we are equally clear as to functions reasonably anticipated by our communities and the optimum size and facilities needed to fulfill these requirements.

The weak points of the Garden City idea stem from its failure to comprehend many of the essential chores of the city. Goals must always prove impracticable unless related to vital needs and interests. Of course, some of the limitations were inevitable frailties. There are always horizons to human vision. The wonder is that Howard, with his deep interest in moral well being, formulated such a persuasive even though partial ideal. Possibly part of the answer is that "the city has become indispensable

[49] Raymond Unwin, "Nothing Gained by Overcrowding," Garden Cities and Town Planning Association, 3rd edition, London, 1918, p. 3. See, for example, the presumably comprehensive analysis of *Town and County Planning* by the McAllisters or the testimony and memoranda presented before the Barlow Commission by those associated with the Garden City and Town Planning Association. For references, see the citations already made to these sources.

[50] W. A. Robson, *Minutes of Evidence*, June 15, p. 778. See also Victor Jones, *Metropolitan Government* (Chicago: University of Chicago Press, 1942).

[51] Eliel Saarinen, *The City* (New York: Reinhold Publishing Corporation, 1943), p. 297.

to civilized existence, but at the same time subjects man to so many frustrations of his deepest longings (that) the notion of an ideal mode of life lying somewhere between the two extremes has been a force ever since cities have been in existence."[52]

It is futile, however, to try jumping out by our bootstraps. Our cities will be with us for a long time to come. Different tools and difficulties confront those who must work within an already stratified structure. Urban patterns will be as much a product of the past as of the future. Thinking, however imaginative, must reflect continuities, not mutations, if it is to find practicable expression. Communities, for example, may be expected to form satellite, perhaps even more mutually dependent relationships. Pointing toward these prospects are the impulsions of population trends, industrial location, employment requirements as well as vital urban cost factors. Understanding of these conditions is prerequisite for intelligent control and guidance.

There are a host of other problems where Howard can lend no assistance. Neighborhoods, if there be such entities, require recognition and redefinition; heavy densities must be cut; slums wiped out; traffic rerouted; open spaces created and well distributed; land uses resurveyed and replanned; congestion thinned and controlled from the source; and all of these objectives are limited by the pace which communities will set for themselves in the progressive revision of their goals.

Wider areas of government control are needed and a better articulation of the neighborhood to the community and the community to the metropolitan region. Necessary expansion of powers and jurisdiction cry out for enlightened and prompt determination. Insight is wanted to sense and keenly appraise vital technical trends like the impact of the helicopter and small airplane. Who knows yet what these inventions portend for city area and structure? Spadework and wisdom are needed to appraise us of the effects of rural migration on the urban way of life: on trade unions, for example, or race relations!

Technicians and advisers are required to operate on the strategic sectors of the urban anatomy. Are we prepared to channel the flood of postwar building that will sweep our urban fringe areas? Do municipal leases provide useful operating powers? Is rental taxation good tactics or a poor dodge in ultimate strategy? Will decentralization and local management furnish the right formula for offsetting federal controls over purse and policy?

Simple formulas are inadequate. The planning function has widened to include social, economic as well as physical facts.[53] He who would help build the city of tomorrow must reckon with the lives and living habits of human beings: with jobs and security, homes and population trends, aesthetics and economics, politics and social drift. Prophets are sometimes exceptions. Inspiration has its own intrinsic virtues and justification. But prophets should never be taken too literally, especially by subsequent generations.

[52] National Resources Committee, *Our Cities*, (Washington, D. C.: Government Printing Office, 1937), p. 53.

[53] See R. A. Walker, *The Planning Function in Urban Government*, (Chicago: University of Chicago Press, 1941); also J. M. Gaus, *The Education of Planners*, (Cambridge: Harvard University Press, 1943).

Reports and Comments

On the 1944 NARUC Report

By E. W. MOREHOUSE*

IN CONTRAST with the flood of comment and criticism greeting the 1943 report of the NARUC Depreciation Committee, its 1944 report has received only meager published comment.[1] Hence, in responding to the Editor's request for comments on these reports, it seems appropriate to focus on the 1944 report, particularly since the tone of that report leaves the subject in a still somewhat confused status.

The heavy guns of critics of the 1943 report were pointed especially at what seemed to be a recommendation that depreciation reserves, where deficient as measured preferably by a straight line reserve requirement, be adjusted forthwith to such reserve requirement as of the present time. Most of the 1944 report is taken up with answering these criticisms.

Unfortunately the answers leave the Committee's position open to different interpretations. One view is that of George O. May who has declared: "The Committee's declarations on the subject of retroactivity in the 1944 report seem to be reasonable and to go as far as could be expected to relieve anxieties caused by the 1943 report." Another view—and the one held by probably the most severe critics of the Committee—is that the Committee has awarded some language to the critics without any material modification of its essential position in the 1943 report.

Support for both views may be found by analysis of the report itself. Mr. May interprets the Committee as envisaging three classes of utilities with respect to the adequacy of the depreciation reserves: (1) those with fairly adequate reserves; (2) those with moderate deficiencies; and (3) those with gross deficiencies. Only with respect to this third class does the Committee recommend immediate adjustment of reserves. As to class 2, Mr. May interprets the Committee as favoring "gradual adjustment of reserves to a straight-line basis through charges to operating expenses," subject to the past treatment of depreciation in regulating rates. Class 1 utilities would be undisturbed.

The Committee states (p. 39)[2] that "for the great majority of utility properties immediate adjustment of the books to eliminate deficiencies in depreciation reserves is not necessary." However, for this "great majority" of the utilities, the Committee contemplates "gradual" adjustments by one or another of several methods that are mentioned (pp. 43-46). The Committee disclaims knowing any "magic formula" (p. 41) whereby the cases requiring "immediate" adjustment can be separated from those requiring "gradual" adjustment or no adjustment at all. The choice of method of gradual adjustment seems to be a matter of discretion, in the Committee's view, depending considerably on past treatment in rate regulation and the company's financial status and history.

Captious critics of the Committee may find some support in its report for disputing Mr. May's interpretation and for asserting that the Committee still recommends retroactive adjustments in most cases. Such critics would find Mr. May's analysis deficient in at least these respects:

(1) Mr. May underweights the Committee's emphasis on the need of some adjustment, either immediate or gradual, for the majority of utilities, since the majority have a reserve deficiency, apparently still measured preferably on a straight-line basis (p. 36). The Committee does not envisage very clearly (p. 42) nor does it concede any large number of cases in which the reserve

* With Trustees of Asso. Gas & Electric Corp., New York.

[1] Except for George O. May, "The NARUC and Depreciation," *The Journal of Accountancy*, January 1945, pp. 34-38.

[2] Page references are to the mimeographed copy of the 1944 report.

deficiency is so small or debatable as not to require even gradual adjustment.

Seemingly under-emphasized is the possibility that an existing reserve requirement may turn out to be excessive in the future by a continuance of the past declining trend of depreciation rates for many classes of property, although the recommendation in the 1943 report of periodic re-study of depreciation rates may be said to catch this point. According to such critics, the 1944 Committee report merely substitutes two kinds of adjustments, and emphasizes the gradual adjustments, in place of the more drastic program of immediate adjustment inferred from the 1943 report.

(2) Mr. May gives more emphasis to making gradual adjustments through operating expenses than is warranted by the Committee's report. The Committee apparently believes that this remedy would be justified only in those cases in which the utility could demonstrate that (a) the past deficient accrual was all that had been allowed in rates, and (b) earnings (or dividends) with the deficient accrual had not been excessive. There is no discussion of the question whether present-day, or past, yardsticks of excess return should apply. Moreover, most of the methods of gradual adjustment suggested by the Committee call for specific estimates of the amount of reserve deficiency and a statement of such deficiency in separate accounts or in the financial statements.[3] Where the utility cannot justify making the adjustment through operating expenses, a charge to income or surplus would be required. Seemingly, such policies constitute a species of retroactive rate or, at least, profits regulation.

(3) The problem of excess reserves is treated very cavalierly. Mr. May does not comment on this phase of the problem. The Committee makes only brief reference (p. 47) to treating excess reserves consistently with deficient reserves. Apparently that would mean gradual adjustments in the "majority" of cases and immediate adjustments only when the excess was substantial.

On one point, however, Mr. May and other critics of the Committee's 1943 report find themselves in agreement as to the 1944 report. In both reports the Committee states that the reserve requirement, "appropriately" determined, was the "best practical measure of actual depreciation" (p. 60). Mr. May agrees with Professor Bonbright's criticism on this point.[4] Most industry commentators agree that the age-life reserve requirement, determined on a straight-line basis as expressly favored by the Committee, would measure the actual accrued depreciation, economic as well as physical, by chance only. Although it seems to me that this criticism of the Committee's reports has merit, as an economist I can surmise that the Committee felt constrained to reassert this position because of the importance in rate regulation of consistent treatment of depreciation for both expenses and accrued depreciation. Indeed, considerations of rate regulation flavor both Committee reports.

The position of the Committee with respect to the reserve requirement measuring depreciation seems destined to become litigated. The wisdom of the Committee's stand, even from its own point of view, is open to question. In the long run, the Committee's position of consistent treatment in rate cases of both the annual accrual and accrued depreciation might well be more easily defended if it had abandoned the terminology of depreciation and adopted that of amortization accounting, as some accountants, such as H. C. Hasbrouck,[5] urged. In view of the Committee's attitude, however, it may become necessary in future litigation for commissions to prove the asserted identity of an accounting concept with the results of engineering and economic investigations.

I have indicated how it is possible to find support in the Committee's 1944 report for either Mr. May's rather favorable interpretation or for a pessimistic, adverse critic's interpretation. Time and experience in administration will tell which is right. For myself, I prefer to think that the Committee intended to take Mr. May's position. Knowing a number of members of the Committee, I think they wanted generally to reassure the electric and gas utility industries that they did not propose to act unreasonably in any given case.

[3] The impact of such statements upon accountants' certificates and upon the position of the utility in rate cases is not discussed.

[4] J. C. Bonbright, "The Depreciation Reserve as a Measure of Actual Accrued Depreciation," *Journal of Land & Public Utility Economics*, May 1944, pp. 98-100.

[5] Chairman, Depreciation Committee of American Gas Association.

Nevertheless, as I have stated, an opposite interpretation finds some plausible support in the report itself. That is unfortunate. It is unsatisfactory to rely for correct interpretation upon a presumed intent of the Committee members. Hence I fear that, instead of clarifying and allaying the depreciation question, the report foreshadows continued conflict[6] and probably some litigation. Frequently such litigation is indecisive, expensive, and wasteful. From the standpoint of all interested parties, including both ratepayers and investors, one can only hope that these fears will be defeated in the day-to-day administration of the depreciation problem.

As a general conclusion, it seems to me that the Committee just missed a good opportunity to assert a brand of leadership in this field which might have commanded widespread acceptance. Despite the many merits of the comprehensive 1943 report, the Committee gives the impression of wanting to be "left of center" at a time when being a little "right of center" might have had constructive results in a highly controversial area. Most utilities, since the revised uniform systems of accounts in the late 30's prudently and justifiably required a change from "retirement reserve" accounting, have accepted this change as the trend from then on. The Committee might have capitalized on this acceptance, if it had not seemingly sought to retrace the past and make the new rules apply to an earlier period as well. This bent, in conjunction with recent developments in the treatment and disposition of Account 100.5, encouraged the interpretation that here was another "birch-rod from the closet."

I think the acceptance of the Committee's recommendations would have been far greater had it said: "The past is gone; from now on let's do it this way, and we recommend adjustments of reserves accumulated in the past only in those few, extreme cases where under any theory of depreciation there is an undisputed, gross deficiency or excess in the depreciation reserve."[7] In view of what has actually happened, the commissions and the industries face instead a period of often unsatisfactory, fruitless litigation on the subject of depreciation, unless administration is tempered, as I think the Committee intended, with reasonableness.

[6] The narrow margin of the vote on the report (19 to 18) in the 1944 NARUC convention at Omaha is also indicative of this result.

[7] After all, as the United States Supreme Court said, in effect, in *Knoxville* v. *Knoxville Water Co.*, 212 U. S. 1 (1909), a utility neglects to provide for depreciation at its peril.

By T. R. AGG*

ANY person who has served on committees appointed to report in a comprehensive manner on technical subjects will appreciate that a great amount of time was spent by the Committee on Depreciation of the NARUC on the 1943 report of the committee and on the 1944 supplement thereto. Regardless of whether it is possible to accept all of the conclusions, one must admit that these reports present an excellent summary of the principal considerations involved in any analysis of the extent to which a property has depreciated.

One of the barriers to an understandable discussion of the subject of depreciation is the lack of generally-accepted and officially-defined terms to apply to the many factors involved. The meaning of a statement is sometimes misunderstood because the writer uses a term according to a definition that is different from that to which the reader is accustomed. The NARUC Committee was aware of that difficulty and even considered adopting definitions for certain terms that are frequently employed in its discussion. It finally decided not to undertake the task, which is to be regretted. Nothing would be more helpful at this stage of the discussion of depreciation than to have available a few clearly defined words.

The word "depreciation" (de=down, pretium=price) literally means lowered in value; that is, the word has a *qualitative* significance, yet it is frequently used in a *quantitative* sense as well. Moreover, when the extent of the depreciation of a property is expressed in monetary terms, there is always a time factor involved. The sum of money mentioned may cover the accrual of depreciation for one year, several years, or the entire life of the property. Frequently, which of these is intended is not apparent from the phraseology. Moreover the method employed for estimating the sum of money representing the

* Dean of Engineering, Iowa State College.

depreciation is of great significance. A set of carefully-defined terms and a standard phraseology for expressing monetary estimates of depreciation would be exceedingly helpful and it is to be hoped the NARUC Committee will reconsider its decision not to attempt the recommendation of standard terms.

These NARUC reports emphasize the principle that depreciation accounting is a means of determining when and to what extent the owners of a property have had their invested capital consumed in the production of goods and services. All forms of operating expenses except those due to the depreciation of the plant can be met during an accounting period, which is almost universally either a calendar or a fiscal year. The wise management of a business requires a knowledge of the true cost of production of goods and services, which involves an estimate of the extent of the depreciation of plant during the accounting period, expressed in monetary terms.

The corollary to this fundamental principle does not seem to be recognized as logical and necessary in the NARUC report. This corollary is that the basis of all accounting and financial transactions relating to plant depreciation as an operating cost must be the actual depreciation that has taken place in the plant during that accounting period. No one questions the use of appropriate accounting methods for recording the wages paid during an accounting period and the basis of the accounts is the payroll. The basis of the depreciation accounting should likewise be the actual depreciation during the period. The reason for this lack of consistency in the NARUC report, and in most comments about it, is that it is difficult to realize that such estimates of depreciation can be made by established methods that are sufficiently accurate for the purpose and that are self-correcting if applied consistently over the life of any unit of physical property. That the annual or periodical estimates of the monetary equivalent of the actual depreciation of the physical plant must be the basis of all accounting and financial transactions relative to depreciation is inescapable. Any other procedure is as logical as it would be to charge wages to the cost of operation on the basis of some assumed average or probability. The NARUC report rather plays down the importance of using the actual depreciation of the plant as the basis for depreciation accounting procedures when it really should emphasize it.

In the face of considerable adverse criticism the NARUC Committee properly sticks to its guns on the importance of considering age-life relationships in connection with estimates of the actual depreciation. The value of a plant asset when installed is the cost at that time, including the cost of installation and appropriate overhead costs. The management rightly assumes that it may expect the unit to earn enough during its useful life to enable the owners to recoup their investment and in addition receive a fair return each year on the portion of the investment that has not already been amortized. When new the unit has a certain expectancy of useful life which is the basis of the estimates that determine whether it shall be purchased. At any date subsequently, the value of the unit is the present worth of the future operation returns from the operation of the unit and this obviously involves an estimate of probable future life in service. In fact, this is the crucial factor.

The difference between the value new (cost new) and the value estimated at any future date is the accrued depreciation at that date. There is no known method of estimating the accrued depreciation that eliminates taking account of age-life relationships. Moreover the periodic estimates of accrued depreciation permit making corrections in the expectancy of the unit as its service history unfolds. The one certainty about the original estimate of expectancy is that it is incorrect. Nothing can be done about that, however, until the unit has been observed in service.

The NARUC Committee is so strongly convinced of the over-all merits of the straight-line method of distributing the total depreciation over the life of the property unit that it overlooks some of the very significant considerations involved in its use. If funds equal to the annual depreciation by the straight-line method are set aside annually to compensate for depreciation, the total set aside for a unit would be equal to the cost new, installed, less net salvage value. But these funds will have been invested for some years, often for many years, before they are required to purchase a replacement. What becomes of the earnings?

Obviously the way in which they are handled has considerable bearing on depreciation accountancy.

On the basis of sound theory and in the interest of simplicity of accounting and checking the disposition of the depreciation appropriations, the "present worth" method of depreciation accounting has much to recommend it, particularly because it holds the depreciation reserve to the minimum size consistent with stability and tends to eliminate the complications that ensue when depreciation funds are invested outside the business.

The NARUC report does not discuss at any length the desirable relationship between the estimated annual depreciation of a property and the annual depreciation appropriation. In the public utility business this is a very touchy question but it is also very significant and it is to be hoped that in some later report this will be given adequate presentation.

In order to conserve the assets of a business enterprise it is necessary to make annual depreciation appropriations from the operation return approximately equal to the accrued depreciation for the fiscal year, and the aggregate of the funds that have thus been appropriated must at all times be substantially equal to the total accrued depreciation. The funds thus secured need not be held separate from other corporate funds but for any unlimited life enterprise must be earmarked for use in replacing units of property as they are retired. Meanwhile the funds may be used for any proper corporate purpose and, as a rule, will be reinvested in the business in improvements and betterments. While this fund belongs to the investors it is not returned to them except when a business is being partially or wholly liquidated. To do so would place the business in the position of having to secure new investments whenever replacements of retired property units become necessary. Also, since this fund must be retained in the business, it should probably be included in the rate base established for a regulated industry. The report is notably weak in its presentation of this phase of depreciation accountancy, and in stating the principles which should govern the handling of the depreciation reserve and the funds relating thereto in establishing a rate base.

Cost Trends in the Telephone Industry

MANY of the things which are said in the teaching of economics are not literally true. This is not unique to economics or to the social sciences generally, but also may be found even in the natural sciences. One reason for this situation is, of course, the endeavor to simplify subject matter at the under-graduate levels and the desire not to introduce complexities for students by loading them with too much detail and too many "exceptions." But the situation may be due to lack of investigation on the part of economists to see if the accepted "principles" and "generalizations" check with the facts of economic life.

The future development and usefulness of economics rests heavily upon more economists securing greater knowledge of the various industries making up the economic picture and refining the statement of economic principles, if necessary, to square with the facts.[1]

Access to data for this type of investigation is often difficult to obtain. The work is time-consuming and the results of any one study will probably not be sensational. Yet if a sufficient number of such investigations are made we can make greater refinements in the light of facts gleaned from studies of present production and distribution methods, policies, and relationships. For example, such investigations can reveal the relevance and significance of that old cornerstone of economics, the "law of diminishing returns," as a basis for accounting for unit cost variations as output changes. It is questionable whether the "law" is able to support the load it is frequently called upon to carry in explaining production and cost patterns in many non-biological industries. Modern industry with its many examples of fixed technical relationships will very often have cost functions different from those which operation of the "law" would warrant.

[1] See E. R. Walker, *From Economic Theory to Policy* (University of Chicago Press: 1942); Frank D. Graham, *Social Goals and Economic Institutions* (Princeton University Press: 1942), p. xvii.

It is encouraging to note that a few economists are now becoming more interested in this less spectacular and ivory-tower type of cost investigation. The studies of Dean at Chicago, Saxton at Oxford, and Berrettoni at Minnesota are examples.[2] This paper represents the summarized results of an investigation of costs in the telephone industry which, it is hoped, will also add to inductive empirical evidence giving the economist a check of refinement upon his tools of analysis and their application.

The objectives of this study were (1) to determine some of the causes of cost differences, (2) to ascertain the effect of plant size upon the pattern of telephone service costs, and (3) to compare such cost patterns with those developed by economic analysts.

The Product and Its Costs

The telephone industry has several economic characteristics not generally found in other industries, and therefore not usually considered in most elementary economic presentations. One of these is the special difficulty of defining the product being produced. Most of the statistics compiled in the industry employ the telephone station (instrument) located on the consumers' premises as the unit for measuring output. However, the product produced and sold is conversation facilities over a given distance and for a given time. Thus the service-product is as various as the different number of call combinations which can be made. It is not the same for a large town as for a small one, nor necessarily the same for one subscriber as for another. A better unit for measuring output-sales would be a call-minute-mile.[3] Such a measure is not used because it is virtually unascertainable with present methods of measurement. "Calls placed" could be used as a crude measure (ignoring the time and mileage aspect) and one that is more accurate than "stations installed." This has been done for part of this study (see Chart III and Table V). Because data can be handled readily only when prepared on the station basis, it was necessary to employ that unit in this investigation as an approximate representation of the product produced and sold.

Short-run cost variations with change in output in this industry appear to have little if any connection with the law of diminishing returns as traditionally stated in the principles of economics.[4] That is, it cannot be said that, as more and more *fully utilized* variable agents are applied to a fixed agent, a period of increasing and then decreasing returns follows which causes unit costs to fall and subsequently to rise. The operation of the fixed plant appears to be tied to numerous virtually fixed technical coefficients so that, in a plant of a given size, marginal output is about constant as fully utilized variables (i.e., operators, power, maintenance, etc.) are added. It is not assumed by operating managers of telephone plants that total output is greater per operator for two, three, four, or more girls than for one girl. If unit costs (i.e., costs per call or per station in use) are higher for small plants and small use than for large plants, it is due to the poor utilization of the services of variable as well as of the fixed agents. Capacity of the working force as well as of the fixed plant is wasted because it is not fully occupied all of the time it is available for use. Lower unit costs of larger operations are due to better utilization of both factors.

Another characteristic of costs in this industry is that output variations, because of technical requirements, are more closely tied to variations in the amount of fixed plant than is generally assumed to be typical. In order to have a substantially larger output of calls it usually means that at least more station apparatus must be installed and some additions made to central office plant. This means that fixed investment will be increased. This trend may be indicated by the estimates made from actual periodic counts of calls placed and investment figures of 114 manual

[2] Joel Dean, *Statistical Cost Functions of a Hosiery Mill* (University of Chicago Press: 1941); C. C. Saxton, *The Economics of Price Determination* (Oxford: 1942); Julio Berrettoni, *Statistical Cost Curves of a Paper Mill* (unpublished thesis, University of Minnesota: 1943). See also: *Cost Behavior and Price Policy* (National Bureau of Economic Research: 1943).

[3] This would mean one conversation circuit in use for one minute for a given number of miles. Speed of connection and quality of the conversation circuit are also important.

[4] See Garver & Hansen, *Principles of Economics* (Ginn and Company: 1937), ch. 5; Stigler, *Theory of Competitive Price* (The Macmillan Company: 1942), ch. 8; Meyers, *Modern Economics* (Prentice Hall, Inc.: 1941) ch. 12.

TABLE I. AVERAGE COST PER STATION FOR BELL TELEPHONE MANUAL SYSTEMS, 1939

STATE OF MINNESOTA

($\overline{X}$ *Arithmetic mean* *Q Quartile deviation*)

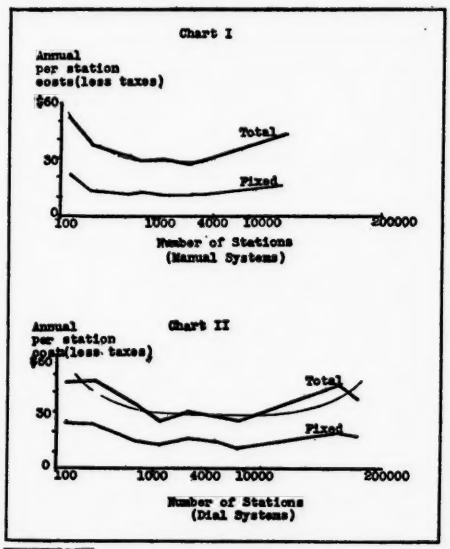
Number of Stations by Groups	No. of Cases	Capital Costs at 6%	Depreciation	Total Fixed Costs	Maintenance	Traffic	Com'l	Operating Taxes	General & Misc. Expenses	Total Operating Costs	Total Costs
			Q			Q					
0–200											
$\overline{X}$=112.8	32	$11.68	$9.31 (2.35)	$20.99	$ 7.28	$7.17 (2.13)	$ 3.06	$ 2.21	$12.86	$32.58	$53.57
200–400											
$\overline{X}$=228	29	8.52	6.29 (1.35)	14.81	8.79	4.92 (1.90)	3.53	1.97	5.39	24.60	39.41
400–600											
$\overline{X}$=566.3	14	6.79	4.92 (1.87)	11.71	6.56	4.39 (1.02)	3.50	1.99	4.89	21.33	33.04
600–1000											
$\overline{X}$=740	11	7.09	5.43 (1.52)	12.52	6.81	3.60 (.87)	2.97	1.73	3.21	18.32	30.84
1000–1700											
$\overline{X}$=1274	14	6.70	4.73 (.80)	11.43	7.06	4.23 (.84)	3.55	1.94	3.91	20.69	32.12
1700–3600											
$\overline{X}$=2347	11	6.76	4.84 (.94)	11.60	6.41	4.71 (.61)	2.83	2.31	3.07	19.33	30.93
3600–6000											
$\overline{X}$=4295	2	7.68	4.90	12.58	6.78	6.25	3.26	4.68	2.37	23.34	35.92
6000–[illegible]000	0										
Over 10000:											
26165	1	9.56	5.88	15.44	8.87	12.27	2.97	4.78	4.08	32.97	48.41

plants (i.e., hand operated switchboards) in 1939, in Minnesota and Iowa.

Annual Number of Calls Placed	*Investment in Plant and Equipment*
93,500	21,000
240,000	32,000
830,000	63,000
1,200,000	87,000
2,000,000	142,000
4,100,000	258,000
9,200,000	575,000
68,500,000	4,400,000

Most increases in calls (output) must of necessity be accompanied by some increase in the scale of plant.[5] It must also be remembered that such increases mean that a slightly different product is being made available for telephone buyers. Therefore, it is not like producing say 6,000 ½ h.p. electric motors in a small plant or 10,000 ½ h. p. electric motors in a large plant.

The investigation reveals few over-all advantages of scale in the industry with the possible exception of the automatic switchboard which can reduce costs in larger sized plants (see Charts I and II).[6] The very little plants have high costs because of poor use of both fixed and variable agents, the middle-sized plants have lower costs because those variable agents and the fixed plant are better utilized. The large plants have rising costs because more central office and outside plant is needed as distances grow and the number of central offices must be increased. The personnel and equipment needed to handle each call rises in the larger plants where each call must go through at least two central office boards instead of one. Wage rates in the larger cities also tend to be higher than in smaller towns. This leads to the often-made claim that the telephone industry is one of increasing costs. (See Table I.)



Cost Measurement

The actual measurement of costs in the industry could not be secured by observations of variations in output over wide ranges within any given plant. Not only is the annual amount of business done in any one plant relatively constant over short periods of time, but also the variations which would take place over long periods of time would involve changes in plant size and thus reflect variations in costs due to changes in the general conditions of the community and of the economy. The best alternative seemed to be to secure cost data for a given year for plants of the many sizes available within a large region having reasonably similar characteristics for operating purposes. Inasmuch as the methods of accounting and reporting are at least partly standardized for a regulated industry, the use of such records was believed to give a somewhat better cross-section of the industry's cost pattern than might be true in using the same technique on a group of non-regulated firms. Two middlewestern states, Minnesota and Iowa, where the telephone plants ranged in size from less than 50 stations to 154,000, were selected for the sample. The year 1939 was employed as being more typical than were subsequent war years or the earlier depression years. The basic data were secured from individual exchange plant-operating

[5] The chief exception to this would be found in a case where a given number of stations in a town were calling on an average of say four times a day and the same number of stations would increase their calling rate to say eight times a day, preferably at off-peak hours. This increased business could probably be handled by merely the addition of a greater operating force to the present fixed plant.

[6] The "tandem central office," which is essentially a central office to interconnect other central offices in the same exchange area, is a technological improvement which cannot be used in small plants and, when adopted in the large ones, merely offsets some of the disadvantage of large scale production. It does not reduce costs so as to make large scale less costly than smaller scale.

TABLE II. AVERAGE COST PER STATION FOR BELL TELEPHONE MANUAL SYSTEMS, 1939

STATE OF IOWA

($\bar{X}$ *Arithmetic mean* *Q Quartile deviation*)

Number of Stations by Groups	No. of Cases	Capital Costs at 6%	Depreciation	Total Fixed Costs	Maintenance	Traffic	Com'l	Operating Taxes	General & Misc. Expenses	Total Operating Costs	Total Costs
0–200											
$\bar{X}$=132	25	$ 7.60	$5.85 (Q 1.68)	$13.45	$ 7.17	$4.78 (Q 1.43)	$ 4.00	$ 2.58	$ 9.82	$28.35	$41.80
200–400											
$\bar{X}$=338	21	6.87	5.07 (.63)	11.94	8.01	3.54 (.69)	3.51	2.31	4.02	21.39	33.33
400–600											
$\bar{X}$=506	16	6.75	5.02 (1.06)	11.77	7.89	4.09 (.90)	3.38	2.29	4.38	22.03	33.80
600–1000											
$\bar{X}$=757	14	6.59	4.79 (.65)	11.38	6.31	5.22 (.68)	3.44	2.44	2.89	20.30	31.68
1000–1700											
$\bar{X}$=1261	17	6.00	4.25 (.58)	10.25	5.91	5.91 (.44)	2.48	2.51	1.23	18.04	28.28
1700–3600											
$\bar{X}$=2257	12	6.03	4.07 (.24)	10.10	6.27	3.82 (.56)	2.53	2.56	2.96	18.14	28.14
3600–6000											
$\bar{X}$=4085	3	6.09	3.88	9.97	5.44	4.82	2.74	2.88	3.00	18.88	28.90
6000–10000											
$\bar{X}$=7557	5	6.55	4.25 (.02)	10.80	7.00	6.28 (.03)	2.71	3.08	3.19	22.26	33.06
10000–20000											
$\bar{X}$=11836	2	6.36	4.11	10.47	6.61	6.93	2.80	3.11	2.91	22.36	32.83

TABLE III. AVERAGE COST PER STATION FOR BELL TELEPHONE DIAL SYSTEMS, 1939
STATE OF MINNESOTA
($\overline{X}$ *Arithmetic mean*)

Number of Stations by Groups	No. of Cases	Capital Costs at 6%	Depreciation	Total Fixed Costs	Maintenance	Traffic	Com'l	Operating Taxes	General & Misc. Expenses	Total Operating Costs	Total Costs
0–200 $\overline{X}$=112.8	9	$14.40	$ 9.69	$24.09	$10.11	$ .75	$ 3.77	$ 2.16	6.26	$23.05	$47.14
200–400 $\overline{X}$=228.0	3	13.44	9.66	23.10	12.08	.77	3.49	2.38	5.81	24.53	47.63
400–600 $\overline{X}$=566.3	0										
600–1000 $\overline{X}$=740	1	8.53	5.03	13.56	11.95	.74	2.89	1.50	2.55	19.63	33.19
1000–1700 $\overline{X}$=1274	1	7.58	4.56	12.14	6.26	1.05	2.89	2.60	1.95	14.75	26.89
1700–3600 $\overline{X}$=2347	2	9.84	5.84	15.68	7.10	1.33	2.92	3.46	3.10	17.91	33.59
3600–6000 $\overline{X}$=4495	2	8.90	5.63	14.53	8.43	.64	2.40	4.33	1.96	17.76	32.29
6000–10000 (8872)	1	6.94	4.40	11.34	8.41	.62	2.11	3.63	2.75	17.52	28.86
Over 10000: 86015	1	11.99	7.14	19.13	10.92	7.25	3.81	4.72	3 92	30.62	49.75
154226	1	10.54	6.00	16.54	9.38	4.48	3.86	6.71	3.23	27.66	44.20

TABLE IV. AVERAGE COST PER STATION FOR BELL TELEPHONE DIAL SYSTEMS, 1939

STATE OF IOWA

($\bar{X}$ *Arithmetic mean*)

Number of Stations by Groups	No. of Cases	Capital Costs at 6%	Depreciation	Total Fixed Costs	Maintenance	Traffic	Com'l	Operating Taxes	General & Misc. Expenses	Total Operating Costs	Total Costs
0–200 $\bar{X}$=132	11	$11.42	$ 8.26	$19.68	$12.39	$ .43	$ 3.25	$3.14	$ 3.89	$23.10	$42.78
200–400 $\bar{X}$=251	10	10.17	7.02	17.19	8.27*	.30*	2.91*	2.90	11.95	26.33	43.52
400–600 $\bar{X}$=458	2	8.31	6.01	14.32	**	**	**	**	.....	**	**
600–1000 $\bar{X}$=0	0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1000–1700 $\bar{X}$=0	0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1700–3600 $\bar{X}$=0	0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
3600–6000 $\bar{X}$=0	0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
6000–10000 $\bar{X}$=6867	2	7.42	4.33	11.75	7.60	1.18	2.52	3.21	3.01	17.52	29.27
10000–20000 $\bar{X}$=18,877	3	8.81	5.14	13.95	7.77	1.45	3.14	4.73	3.08	20.17	34.12
Over 20,000: 48,247	1	10.73	5.92	16.65	8.54	2.30	3.56	5.64	1.43	21.47	38.12

* For two plants only, account other plants converted from manual to dial. **All plants converted from manual to dial in 1939.

and cost-analysis records which were made available to the writer by the companies and from cost records filed with the regulatory agency in Minnesota.

Inasmuch as plants of approximately the same size had different costs because of different local conditions (such as topography, climate, degree of concentration of the town area, local labor conditions, rural lines served, type of switchboard and outside plant, and number of calls made at the peak period) the plants of similar size were grouped and an unweighted arithmetic mean was taken. This at least made it possible to ascertain the trend of costs. Cases badly out of line with the group mean were each specifically checked to see if the difference could be accounted for because of some local or special conditions and, if so, adjustments were made in line with records from earlier years. As will be seen in Tables I and II, the widest variations were in the smallest sized plants. For fixed costs an arbitrary return of 6% was selected and applied to gross book investment in each case, while depreciation was at the amount charged by the companies.[7] Variable cost and taxes are shown as totals, and a few of the major sub-headings (i.e., traffic costs, maintenance, commercial expenses, general and miscellaneous expenses) are also tabulated.

Chart I (Table I) shows the manual system[8] cost curve pattern for one of the states. It indicates that the industry is one of a decreasing cost trend from 0 to about 1,000 stations, constant costs from 1,000 to about 4,000 stations, and probably increasing cost from there to the largest plant in the sample having 26,000 stations. It is interesting to note that the most important single factor contributing to decreasing cost

[7] A different return figure would raise or lower the total cost but the pattern of the cost curves would not be changed.

[8] Manual system is one where connections are set up at the central office by operators after the called number is spoken by the subscriber. Note that log-scale had to be used on the abcissa.

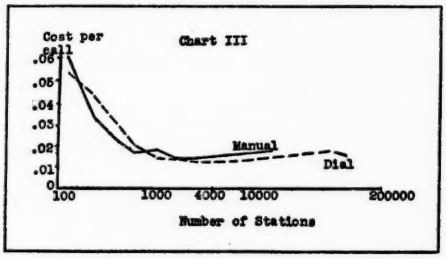
TABLE V. AVERAGE COST PER CALL PLACED, 1939, BY GROUP SIZE*
MINNESOTA AND IOWA

Plant Size by Telephones Served	State of Minnesota Cost per Call		State of Iowa Cost per Call	
	Manual	Dial	Manual	Dial
0–200	$.0606	$.0535	$.0437	$.0447
200–400	.0369	.0446	.0317	.0413
400–600	.0224	.....	.0287	.....
600–1000	.0187	.0202	.0215	.....
1000–1700	.0201	.0167	.0194	.....
1700–3600	.0175	.0191	.0170	.....
3600–6000	.0174	.0157	.0158	.....
6000–10,000	.....	.0151	.0152	.0134
10,000–20,000	.....	.....	.0138	.0144
Over 20,000:				
26,000	.0197	.....	.....	.....
49,000	.....	.....	.....	.0140
86,000	.....	.0194	.....	.....
154,000	.....	.0168	.....	.....

* Taxes included.

in the early stage is general office and miscellaneous expense, while increasing unit cost is heavily geared to traffic expense (operator's wages) and not fixed investment costs as might be supposed. There is no evidence to support the conclusion that under the conditions in these two states the industry is one of increasing costs until after a plant serving about 4,000 stations is in operation. This would be in a town of around 15,000 to 20,000 people.[9] The cost pattern for Iowa was like that of Minnesota except that the general levels of unit costs were slightly lower. (See Table II.)

Chart II (Table III) reveals a cost pattern for automatic dial systems in the Minnesota



area.[10] The number of cases is too small for any reliable prediction but the figures secured reveal dis-economies of large-scale production arising at around 10,000 stations. This is near the point where multiple central offices become necessary. The evidence secured indicates that automatic systems have a longer range of approximately constant cost operations, covering towns from about 5,000 up to about 40,000 population. The data for Iowa were adequate to reflect only the tails of the cost curve, but the figures secured are not in contradiction to the ones shown for Minnesota. (See Table IV.)

Chart III (Table V) portrays the cost trend when the costs *per call* are employed as a unit of measurement instead of the number of stations installed, using the same plant groups as before. Figures for this table were secured from "peg count" tabulations of the companies. The decreasing cost effect is distinct but the increasing cost effect is less noticeable within the range of the limited sample.[11]

Summary

In the light of these observations, there is basis for qualifying cost and production principles to conform to the realities of situations different from those generally propounded, especially when cost variations are said to be based upon the "law of diminishing returns," and an unchanging product. At least in this industry, variations in output are likely to be closely associated with variations in "fixed" plant, and a constantly changing product. Considering usual elementary classifications, the telephone industry then is neither fish, beast, nor fowl, but a hybrid of many elements. Lastly, instead of saying that the telephone industry is one of increasing costs, as is generally done, it appears more correct to say that it is an industry which *becomes* one of increasing cost. However, this does not appear until, within limits of existing plant capacities, it has gone through a stage of decreasing and constant cost. If 58% of the people in the United States live in rural areas or towns under 25,000, it is not unlikely that a majority of them are being served locally by telephone systems operating under decreasing or constant cost conditions.[12]

FLOYD R. SIMPSON

Assistant Professor of Economics,
University of Washington

[9] These data apply only to the middle-western states studied. They should not be projected as necessarily indicative of the *level* of costs in other sections of the country where operating conditions are substantially different. Inasmuch as the number of cases above 3,600 stations is necessarily small because of the fewness of towns in the larger groups, the results indicated must be interpreted with reservations beyond 4,000 stations.

[10] The largest plants in this group still had a few manually-operated central offices in 1939. This no doubt made the costs slightly higher than 100% dial operation will eventually give.

[11] It should be pointed out that the fall is partly due to the greater utilization of the telephones in the larger cities. Since most telephones in the areas studied are charged for on a per-station basis and not a per-call basis, this fall does not *necessarily* mean greater profits per call. Average daily calls per telephone rose from 2.4 in the smallest plants to 7.2 in the largest.

[12] The present, current interest in small-community and rural telephone systems as evidenced by the Hill R.T.A. bill is significant here. If the 35-year 1¾% government loans for development of such service are feasible, the loans would be for areas where costs of service are high but decreasing costs are most likely to be found, providing more intensive development can be made.

Public Utility Financing in the Second Quarter of 1945

PUBLIC utility security offerings in the second quarter of 1945 totaled $344 millions which is $10 million more than that of the first quarter of this year. The total offering exceeded the average second quarter offering for the past eight years by $139 million or 68% and is higher than the offering in the second quarter of any year since 1939. All issues, except one sold privately, were offered during April and May because June was devoted to the sale of the seventh war loan bonds.

Public utility long-term debt issues sold publicly are shown in Table I. There are eleven issues listed which totaled $250 million. The largest issue is the $59 million Virginia Electric and Power Company, 2¾'s of 1975 which was offered in May at 101.5% of par to yield 2.68%. Another large issue was the $50 million New York Power and Light Corporation, 2¾'s of 1975, offered in April at 102.50% of par to yield 2.63%, the lowest offering yield of the quarter. After an allowance for underwriters' commissions and incidental expenses the net cost to the Company of the latter issue was 2.70%, the lowest of any issue this quarter. The weighted average offering yield was 2.73%, the lowest of any quarter since this series was started in 1936. Underwriters' commissions reached a new low weighted average of .822% and incidental expenses averaged .71%. The net cost to the Company averaged 2.79% which is the lowest on record since this series was started. The highest average net cost of funds obtained from publicly sold bonds on record in this series was 4.05% in the fourth quarter of 1937 and in the first quarter of 1938. It should be noted that offerings in the two quarters cited above were considerably less than those of the current quarter.

Table II shows privately offered long-term bond issues. Four issues are listed which total $40 million. The $30 million 2⅞'s of 1965 of the Cities Service Company was the largest

TABLE I. SUMMARY AND ANALYSIS OF PUBLIC UTILITY LONG-TERM DEBT ISSUES OFFERED PUBLICLY, SECOND QUARTER, 1945

Company and Issue (A)	Coupon Rate (B)	Principal Amount (C)	Maturity Date (D)	Month of Offering (E)	Offering Price (F)	Offering Yield (G)	Underwriters' Commissions (H)	Proceeds to Company (I)	Estimated Incidental Expenses (J)	Net Proceeds (K)	Cost to Company (L)
	%	$			%		%	%			
Central Illinois Electric & Gas Co. First Mortgage	3	14,000,000	1975	April	103.00	2.85	.45	102.55	.56	101.99	2.90
Central Vermont Public Service Corp. First Mortgage, Series D	2¾	6,967,000	1975	April	101.50	2.68	.73	100.77	.99	99.78	2.76
Kansas-Nebraska Natural Gas Co. First Mortgage Sinking fund	3⅜	4,484,000	1965	April	106.375	2.95	[1]	[1]	[1]	[1]	[1]
Montana-Dakota Utilities Co. First Mortgage	3	7,500,000	1965	April	102.625	2.83	1.125	101.50	.43	101.07	2.93
New York Power & Light Corp. First Mortgage	2¾	50,000,000	1975	April	102.50	2.63	.70	101.80	.90	100.90	2.70
Ohio Edison Co. First Mortgage	2¾	26,089,000	1975	April	101.00	2.70	.72	100.28	.45	99.83	2.77
Georgia Power & Light Co. First Mortgage	3	2,500,000	1975	May	101.95	2.89	.44	101.51	2.00	99.51	3.03
Tennessee Gas & Transmission Co. First Mortgage	3	35,000,000	1965	May	102.25	2.95	1.75	101.50	.98	100.52	2.96
Texas Electric Service Co. First Mortgage	2¾	18,000,000	1975	May	101.00	2.70	.56	100.44	.75	99.69	2.77
Texas Power & Light Co. First Mortgage	2¾	26,600,000	1975	May	100.75	2.71	.60	100.15	.68	99.47	2.78
Virginia Electric & Power Co. First & Ref. Mortgage	2¾	59,000,000	1975	May	101.50	2.68	.68	100.82	.50	100.32	2.73
Total or Weighted Average		250,140,000			101.85	2.73	.822[2]	101.08[2]	.71[2]	100.37[2]	2.79[2]

[1] Information not available.
[2] Exclusive of issue for which information is not available.

TABLE II. SUMMARY AND ANALYSIS OF PUBLIC UTILITY LONG-TERM DEBT ISSUES OFFERED PRIVATELY, SECOND QUARTER, 1945

Company and Issue (A)	Coupon Rate (B)	Principal Amount (C)	Maturity Date (D)	Month of Offering (E)	Offering Price (F)	Offering Yield (G)
	%	$			%	%
Savannah Electric & Power Co. First Mortgage	3	6,000,000	1975	April	100.75	2.96
Southern Utah Power Co. First Mortgage	4	840,000	1970	April	101.00	3.94
New Haven Water Co. Gen. & Ref. Mortgage, Series E	3	3,600,000	1980	May	107.00	2.69
Cities Service Gas Co. First Mortgage	2¾	30,000,000	1965	June	101.00	2.81
Total or Weighted Average		40,440,000			104.50	2.85

TABLE III. SUMMARY AND ANALYSIS OF PUBLIC UTILITY PREFERRED STOCK ISSUES OFFERED SECOND QUARTER, 1945

Company and Issue (A)	Dividend (B)	Principal Amount (C)	Month of Offering (D)	Offering Price (E)	Offering Yield (F)
	%	$		$	%
Central Illinois Electric & Gas Co. Cum. Preferred, Par $100	4.10	3,000,000	April	102.00	4.02
West Virginia Water Service Co. Cum. Preferred, no par	4.50	1,456,000	April	104.00	4.33
Associated Tel. Co. Cum. Preferred, Par $20	4.50	6,307,020	May	22.50	5.00
California Water & Telephone Co. Cum. Preferred, Par $25	4.80	2,675,000	May	27.50	4.37
General Waterworks Corp. Cum. Preferred, Par $100	5.00	1,000,000	May	100.00	5.00
New York Power & Light Corp. Cum. Preferred, Par $100	3.90	24,000,000	May	104.00	3.75
Tennessee Gas & Transmission Co. Cum. Preferred, Par $100	5.00	7,500,000	May	104.00	4.81
Total or Weighted Average		45,938,020			4.19

privately offered issue of the quarter and is 75% of the total. The offering price of the four issues averaged 104.50% and the average offering yield was 2.85%.

The $2.5 million Montana-Dakota Utilities Company's 2's maturing 1945-1953 was the only serial issue offered during the quarter. The bonds were offered in April at 99.27% to 101.99% according to maturity. Underwriters' commissions were .25% and incidental expenses were estimated at .43%.

Preferred stock offerings, listed in Table III, totaled $46 millions, the largest offering since the first quarter of 1941. The New York Power and Light Company's $24 million offering at $104 for a $100 par share to yield 3.75% was the largest issue of the quarter. The average offering yield of the seven issues listed was 4.19%.

Three issues of common stock appeared during the quarter. Central Vermont Public Service Corporation's issue of 40,000 of no par common was offered in April at $20.25 per share. In May the California Water and Telephone Company offered 9,675 shares of $25 par common stock at $36 per share. The third issue was 8,025 shares of capital stock, par $25, offered at par in May by the Haverhill Electric Company.

ORVILLE P. DEUEL
Rate Analyst,
Wisconsin Public Service Commission

Book Reviews

Balkan Background. By Bernard Newman. New York: The Macmillan Co., 1945. pp. 354. $2.50.

Mr. Newman is the author of some forty books, mostly spy stories and travel books. Unlike some of our reporters who can penetrate the inside of a whole nation in a few days, Mr. Newman belongs to the old-fashioned school. He knows the Balkans from first-hand observation and experience accumulated in many years of travelling. In addition, Mr. Newman has the unusual advantage of speaking most of the Balkan languages which gave him the opportunity of leaving the famous cafes in the Balkan capitals for the more remote villages and hamlets which are rarely visited by strangers from Western Europe or the United States. *Balkan Background* is, thus, not an account of what Mr. Newman drank at what bars with what fellow-correspondent, but a vivid and honest story of the people in the Balkans who make up the bulk of the population, i.e., the peasants.

In the first introductory chapter the author gives a brief over-all picture of the Balkans, with particular reference to British policy in that area. He also explains the heritage of Turkish rule of brutality and mismanagement which has survived the disappearance of the Turkish empire in Europe, and he shows how the mixture of the Balkan peoples has progressed to such an extent that clear political boundaries based on the principle of nationality are well-nigh impossible. Mr. Newman correctly sees that the problem of the Balkans is essentially the problem of the peasant. Of the sixty million people living in that region, seventy-four per cent live on the land, and about another fifteen per cent live by the land, marketing and processing the products of the land. Considering the fact that the average cash income of the Balkan peasant *family* is seventy dollars per annum, it is obvious that no lasting settlement of the Balkan problem can be expected unless the living standards of the peasant masses be raised to a more tolerable level.

In chapters two to seven, Mr. Newman discusses the individual Balkan countries: Bulgaria, Rumania, Yugoslavia, Albania, Greece and Turkey. It is difficult to see why Mr. Newman has excluded Hungary and included, instead, Turkey, which is essentially Asiatic; but that minor slip does not detract from the general conclusions that emerge. First, what all these nations need is a new economic pattern in which industry and agriculture find their place in a sane equilibrium in accordance with local resources and exigencies. What is often overlooked in this connection, is that industrialization in itself is no magic key that opens all locks of welfare and prosperity. The raising of agricultural output is the first practical program on the foundation of which a more prosperous internal market and, hence, more industry, can develop. Second, many of the Balkan problems are regional in character, and demand trans-national, rather than national solutions. The Danube flows through seven countries, and its waters are of vital concern to even more. Obviously, no substantial changes can be brought about in this whole area unless narrow political egotism of the national states cedes, for well-defined and practical objectives, to regional organizations. Third, it is very doubtful whether laissez-faire methods of western liberal capitalism can effectively cope with the economic and social problems of Balkan Europe.

The eighth, and last, chapter discusses the "New Balkans." Written before the Russians liberated the Balkans from German control and occupation, this chapter suffers from a certain amount of unreality in its political proposals. Mr. Newman is a decided adherent of the Balkan federation plan as the only way out. Unfortunately, many of the evils which federation is supposed to cure in the Balkans prevent, for the time being at least, the coming into existence of federation itself. Russian influence rather than federation will be the *leitmotif* in Balkan politics for the next thirty or fifty years.

American students of land economics and international affairs will greatly profit from Mr. Newman's book because we have in the western hemisphere a similar disequilibrium between the highly industrialized United States and the under-developed, mainly agricultural economies of Latin America. Latin America is, in a sense, the Balkans of the Americas, with many of the economic and political problems that the Balkans pose in Europe.

WILLIAM EBENSTEIN
University of Wisconsin

Readings in Business Cycle Theory. Selected by a Committee of the American Economic Association. Philadelphia: The Blakiston Co., 1944. pp. xvi, 494. $3.50.

Twenty-one articles in the field of business cycle theory, selected by a committee of the American Economic Association under the chairmanship of Professor Gottfried Haberler, are republished in this volume. With the exception of an extract from Professor Wesley C. Mitchell's *Business Cycles and Unemployment*, the articles were first published in the economic journals of the United States, Great Britain, Germany, and Holland. Four of them antedate 1934. The others appeared during the years 1934-1941. Most of the articles are concerned with theoretical developments and discussions inspired by the phenomena of the great depression following 1929.

The first four articles present descriptions of cyclical phenomena and analytical methods. Four others are devoted to an analysis of the interrelations between saving, investment, consumption, and national income. A group of six discusses the multiplier and acceleration principles and the effects of government deficit financing on the level of economic activity. Three articles concern themselves with aspects of the monetary theory of economic fluctuations, and an equal number with the underconsumption and secular stagnation theories. The final essay in the volume, by Dr. Mordecai Ezekiel, attempts a more general development of the so-called "cobweb theorem," and a clarification of "its relation both to neo-classical economic theory and to statistical price analysis."

In general the selection committee for this volume has exercised good judgment in its choices from the vast periodical literature on the subject. In the opinion of the reviewer, however, the allotment of space to each of the six major topics included could have been better. It is not clear why almost as much space should have been allotted to four articles that indulge in a detailed and rather arid discussion of the multiplier and acceleration principles as is allotted to the theories and controversies turning on the relations between saving, investment, and the national income. The latter constitutes certainly one of the most fruitful theoretical developments of contemporary economics. The multiplier and acceleration principles are of dubious value in analyzing the effects of investment and government spending on the level of economic activity, as is pointed out in an illuminating article (No. 12 in this series) by Professor Paul A. Samuelson. And despite the fact that, as Professor Haberler notes in his introduction, "the monetary theories of the business cycle are no longer so much in vogue as they were ten years ago," it is somewhat surprising that only one article is devoted directly to Hayek's monetary over-investment theory, a theory which even yet is probably the strongest competitor to the under-investment theory of Keynes and the Stockholm group. It seems too, in view of the controversy that has ranged about the secular stagnation theory, that more material on this theory might better have been included than a reprint of Professor Alvin H. Hansen's presidential address before the fifty-first annual meeting of the American Economic Association in 1938. The gap here is partially filled, however, by Professor Howard S. Ellis' acute analysis and critical estimate of the secular stagnation thesis in his essay, "Monetary Policy and Investment."

Within the limits allotted to the topic, however, the four articles devoted to the under-investment theories of Keynes, Robertson, and the so-called Stockholm group are well-chosen. Professor Bertil Ohlin's "Notes on the Stockholm Theory of Savings and Investment" gives an excellent account of the development of this theory, an illuminating description of its characteristics, and a penetrating comparison of it with Keynesian theory. Professor Lutz, in an essay on "The

Outcome of the Saving-Investment Discussion," does much, in the words of Professor Abba P. Lerner, "toward the elimination of a fruitless disputation that has been going on about the 'proper' definitions of saving and investment."

Professor Dennis H. Robertson's witty and pungent essay, "A Survey of Modern Monetary Controversy," strikes the reviewer as exposing neatly how much of the controversial issues of recent years in monetary, interest, and business cycle theory have turned on the use and definition of terms and how little on substance. This article is calculated to make a confirmed Keynesian decidedly uncomfortable.

Among other articles reprinted here which seem to the reviewer particularly worthwhile are Professor John H. Williams' careful analysis of the value and effects of government deficit spending, Professor John M. Clark's appraisal of the workability of various devices to compensate for economic disturbances and dislocations, and Professor Hans Neisser's study of Say's *Law of Markets* in his article, 'General Overproduction."

The very extensive classified bibliography of articles on business cycle theory, compiled by Professor Harold M. Somers and running to 41 pages, is deserving of particular praise. Its coverage of items on the subject in the English language is remarkably complete. The coverage of foreign language items, while admittedly less complete, is nevertheless substantial. The senior or graduate student, the "intelligent layman," and the professional economist will each find this bibliography an invaluable aid to initial or further reading and study in business cycle theory.

E. E. HALE

The University of Texas

A Time is Born. By GARET Garrett. New York: Pantheon Books Inc., 1944. pp. 234. $2.50.

Since Henry Adams bowed down in prayer before the Gallery of Machines at the Great Paris Exposition of 1900 where the dynamo was being introduced, many explanations have been offered concerning the nature of machines and their relation to the economy and history of man. *A Time is Born* offers in dramatic form the observations and reflections of Mr. Garrett on the "biology of machines" and on man's struggle to understand the basic physio-economic laws governing machine society.

Man's economic story, as Mr. Garrett conceives it, may be climaxed by an age of potential peace and world prosperity once man conceives the revolutionary implications of the recent scientific and technical knowledge: that the sources of raw materials are no longer limited by nature but are molecular and co-existent with matter. This fact lays an orienting framework for the development of machine societies in which predatory market exploitation and the social and economic barbarism which follow can be avoided. Thus the great plastic industries building from air, water, and rock (or crude cellulose) may profoundly affect the relationship not only between man and nature, but also between nations. Incidentally, they may make necessary an entirely new concept of land as an economic factor.

The volume is divided into four parts. Part I is a sketch of man's economic experience, somewhat as follows. Labor is found hard and irksome; some men revolt, others are enslaved. Cities are built, found vulnerable, and in the end exist by outright piracy. Capital as a tool is discovered. Creditor and debtor mentalities develop from sources deep in the strength and weakness of human nature. The round world is discovered. The new ideas of change, progress and possession take hold of the mind. The machine culture evolves and eases the burden of labor; but the change from master-slave to employer-employee relation does not solve the distribution of the burden. "By what rule should the product be divided? How and by whom should the task be allotted?" (p. 45) These remain the basic questions of the machine society as of the pre-machine society. "In its least aspect the conflict is one between classes within a state. In a formidable aspect it is one between unequal nations. In its last and terrible phase it is a conflict between races." Thus, "as the outline of industrialism grew definite, Europe was no more in doubt about what she wanted from her round world at large. These three things she wanted from it—cheap food, cheap raw materials, and cheap labor to produce them." (p. 45) Following this plan, North America, Africa

and East Asia were invaded. In Asia one race—the Japanese—turned apprentice and learned the machine methods of European man soon to turn them into practice in both peace and war. This is the background for the Machine Kingdom, the title of Part II.

Parts II and III deal in broad outlines with the nature of machine-minded people, with the nature of the machine itself, and with the irrational economic behavior which characterize the machine world. Why has machine man, " . . . been powerless to inform the augmenting body of machine phenomena with a rational or benign spirit?" (p. 69) Apparently machine-man's fears of the machine are basically fears of himself. Proposals for "science holidays" and other arbitrary checks on the growth of science and technology (presumably to give man time to develop wisdom) are an outgrowth of this fear of self. Mr. Garrett believes that man's failure to cope rationally on the economic level with machine phenomena rests in the psychic relation between man and his machines. "The machine is the will of man organized. It is the free extension of himself in the dimension of force." (p. 73) In a sense, Mr. Garrett suggests that the machine is a manifestation of life and is therefore in part mysterious. The spirit of man is in his machines.

Since it is too late to abandon the machine (it has made possible almost unbelievable increases in population and is essential in order to maintain the present level) the only hope is to better understand it, which means first that man must better understand himself. This is not a completely hopeless task for, "certainly a machine environment will induce new habits of thinking. To act upon a machine with passion, malice or impulsive ignorance is to wreck it, and the lesson is final. To command its power you are obliged to act upon it with knowledge, reflection, and understanding. It is not obedient to you; it obeys laws which you cannot alter, or corrupt." (p. 101)

On the nature of the machine itself, Mr. Garrett makes numerous suggestions which economists should explore further. His analysis will help economists to understand how production by manufacture differs from production by machinefacture. Suffice it to say here that in the former the elements of specific productivity are guides in distributing the rewards of the economic system while in the latter bargaining power of groups, of nations, and ultimately of races determines by their respective pressures the distribution of the social benefits of production.

The first law of the machine, Mr. Garrett points out, is that cost is a function of quantity. "From this first law of the machine, that knows no fatigue, you get a chain of economic and social consequence all new in the world, including the paradox of surplus; and then the tragic and absurd irony that when a surplus appears the people that have produced it will begin in a competitive manner to sacrifice their standards of living in order to keep the machine going." (p. 130) Thus, the vicious cycle of economic competition begins; trade is economically and morally ruined. The nations with the lowest standards of living rejoice in this for they will be able to keep their machines going longer. The paradox of ruinous plenty plagues man. Wasteful consumption is regarded as necessary, wasting labor is desirable. All of this because the divisible product of the machine tends to increase faster than does economic wanting.

Feeding the "machine belly" with its ever larger needs in raw materials and selling even cheaper to subjected peoples who furnish the raw materials had produced an economic nightmare by the time World War II began. Now the war has come and many backward nations have been mechanized. Where will industrial nations sell their manufactured productions? Vague uneasiness follows this question. The old ghost of economic necessity hovers about: we must export or perish is the typical answer. Peace in the face of these economic ghosts is not joyous.

In his last chapter, "Landfall," Mr. Garrett asserts his hope that the synthetic industries and the sciences grown up about them will make possible a regional self-sufficiency in basic materials which will effectively eliminate the struggle for raw materials and thereby lead to new and saner concepts of trade and international intercourse. Most economists will be interested in, though probably only a few will accept in full the laws, myths, and faiths which make up the thesis of *A Time is Born.*

ROBERT W. HARRISON
Bureau of Agricultural Economics,
U. S. Department of Agriculture

Comparative Economic Systems. By Ralph H. Blodgett. New York: Macmillan Company, 1944. pp. 845.

Comparative Economic Systems, written as a textbook for courses on that subject in colleges and universities, compares and evaluates the three economic systems—capitalism, socialism, and fascism. Communism is treated in less detail, largely because of the absence of a communist state which could serve for illustrative purposes. Part I, 660 pages, analyzes the systems and is the basis of the title; Part II, 140 pages, discusses Marxian socialism, summarizing and evaluating the philosophy of Karl Marx and his contributions to economic theory. Several pages of bibliography refer the student to additional readings, and a well-arranged index makes easy the task of finding again the discussion of particular points. The author, Associate Professor of Economics at the University of Illinois, handles a wide subject matter content in a masterly but easily readable style.

As stated in the preface, the approach to the subject is distinctive in that the organization of the material is by economic topics rather than by economic systems. These topics include: economic principles; economic institutions; government; making economic decisions; the organization of production; agriculture; the mechanism of exchange; credit, banking and investment; the distribution of income; the status of labor; international trade; and public finance. The reader is thus enabled to compare and contrast the economic systems, topic by topic, to better advantage than if each system were treated as a whole in separate books. The summary paragraphs for several of the sections and chapters might well have been included throughout; however, the four chapters that evaluate Capitalism, Socialism, Soviet Russia, and Fascism, as the finale to Part I, serve the same purpose by summarizing the strong and weak points of each system.

In addition to the discussion of theoretical implications, the economic systems are analyzed by the use of examples. The United States is the Capitalist state, Russia the Socialist, and Italy the Fascist. National Socialist Germany and Fascist Italy are discussed separately under several of the topics but are evaluated together in the chapter on Fascism, for the two economic systems are essentially the same. The use of these examples helps explain the differences between systems, but does add unnecessarily to length. In this sense, portions of several of the chapters may be designated as economic history.

The text was written particularly for the use of undergraduate students and it is assumed that the students have had previous courses in general economics. In the opinion of this reviewer, the book will be of greatest value to the group for which it is written, but can well serve a wider field as a reference for other courses. The agricultural economist may be disappointed with the discussion of agriculture under capitalism and may be inclined to question some of the discussion of agriculture under other economic systems, because of the nature of the presentation and the conclusions concerning agriculture under capitalism. Nonetheless, the agricultural student can get a better perspective of agricultural economics and of capitalism by becoming familiar with the characteristics of other economic systems. The institutional economist may disagree with some of the examples of economic institutions, which result from the use of the dictionary definition of institution, but the treatment of institutions and the explanation of their significance under the different systems on the whole is well done.

The graduate student will want to go into more detail about the significance of the various systems in world organization, and study the difficulties of relationships between nations having different economic systems. The graduate student will also need to consider in more detail the significance of government as related to economic organization. Both the graduate and the undergraduate student may need to have the thought emphasized that in modern society no single economic system exists without some of the attributes of other systems. The areas of comparability may be just as signicant as are those of contrast. Economic organization may be looked upon as a continuum, and over a period of time nations tend to move along this scale; it is the critically defining attributes that divide the scale into operating systems. As the author

demonstrates, the differences revolve around social aims and economic institutions rather than around economic principles.

The chapter on "Evaluation of Socialism" treats the problem of transition from some other system to socialism. This is somewhat extraneous in a comparison of economic systems as such. The explanation rests on the length with which Marx deals with this subject and the desire of the author for coverage. The chapter evaluating Soviet Russia and Part II on Marxian Socialism also sacrifice length to coverage.

The chapter on "Evaluation of Capitalism" rather overlooks, or at least does not emphasize, the fact that change is inevitable. Modern capitalism cannot be expected to have the same characteristics as did capitalism a hundred years ago. The sphere of influence exercised by government is increasing, but this does not necessarily mean the destruction of capitalism. Even though the chief difference between capitalism and fascism as economic systems is in the number and severity of the controls that are applied, the manners in which those controls are developed and applied are of fundamental importance—which only emphasizes the significance of the relationship between governmental and economic organization. The distinction between *control* and *regulation* (made by Professor Abba Lerner in "The Economics of Control") is a convenient and an important one. A regulated capitalism, both theoretically and practically, need have none of the peculiar attributes of fascism or socialism.

VIRGIL L. HURLBURT

Bureau of Agricultural Economics,
U. S. Department of Agriculture

The Farmer and the Rest of Us. By Arthur Moore. Boston: Little, Brown & Co., 1945. pp. 226. $2.50.

The author, an editor of a daily paper in Central Illinois, has set for himself the task of "hunting through an industrialized society for the core of facts about agriculture's relations to the rest of society." The problems of the midwest farmer are set forth in striking contrast as he tries to produce food for a nation. These problems and paradoxes are developed for the purpose of showing that much of the distrust with which the "rest of society" views the economic and political activities of farmers is based upon misinformation concerning farmers' motives. It does not comprehend, neither does it appreciate, that they inhere in the farmers' way of living and thinking.

The farmers' struggle through the generations heads up in a continuing quest for security. This search is frustrated generation after generation as they struggle through industrial depressions encouraged with only a few intervening years of hopeful business recovery. They cannot translate business procedure into workable farm programs. Neither have they developed programs of their own which afford any considerable degree of security against the vagaries of this industrialized society of which they are a part.

Absentee land ownership with its lack of interest in soil saving, farm land and farmstead improvement, and farm community building is one of the symptoms to be properly diagnosed. This system of land ownership results in the continuous movement of wealth (which the farmers create on their farms) to cities rather than being used to make for more desirable rural living.

Even for those remaining on farms the problem of size of farm unit is still unsolved by a majority of farmers. True it is that large centralized holdings have failed in their struggle for survival against the family-sized farm. The small farm also has persisted, however, and fully one-half our farmers are on units too small to make for respectable living incomes. The removal of rural poverty must begin with a removal of these small farms. They neither make living incomes for themselves nor contribute food for city needs.

The relation of farmer to laborer is one of the author's most discriminating discussions. The history of farmer organizations leads from attempts to work with labor to the point where "we are confronted with the belief that the way to help farmers is to hurt labor." Labor on the other hand is convinced that "the way to help labor is to call farmers reactionaries and Fascists." The best purposes of society will not be served by attitudes of this nature and Mr. Moore is convinced that "there can be no

wise food statesmanship until there is a meeting of farmer and laborer." This movement cannot come from political platforms. It must come with a change in the attitudes of both farmer and laborer—from the furrow as well as the assembly line.

The farmer's stand in politics is essentially conservative except when his equity has disappeared and his income is not large enough to pay farming expenses.

Situations of this nature gave support to Populism in the early nineties and to the New Deal in the thirties. The acceptance of subsidy payments under the Agricultural Adjustment Act met a need by farmers for money, but did not mean the acceptance of the philosophy under which it was given. Only when the checks were sent out as payments for soil conservation practices did a large majority of farmers accept them with good grace. They accepted them because they were convinced that "soil is a public trust and that public money spent to help maintain it is public money well spent." The farmer remains an experimentalist, always looking for new ways to do things, and the only theory, creed or prejudice which stands out in farmers' thinking is characterized by the question, "Will it work?"

The nation's need for more food is reflected in the fact that "around 40 million Americans suffer from faulty diet." It may be that we do not need more food so much as we need food of different quality. We do need some way of distributing food in order to "reduce the oddest paradox of all—that of surplus food in the midst of undernourishment." This is a challenge for the whole of industrialized society rather than for the farmer alone. Mr. Moore feels that as problems of this sort are solved farmers will move toward the security for which they strive.

P. E. McNall

University of Wisconsin

Economic Problems of Latin America. Edited by Seymour Harris. New York: McGraw-Hill, 1944. pp, xiv, 465. $4.00.

This is a collection of 18 essays, to which 17 economists have made contributions. The volume is divided into a Part I, which surveys over-all economic issues; a Part II, which contains seven studies of certain economic problems of the Latin Americas; and a Part III, consisting of studies of ten of the main countries.

The main orientation is toward the effects of wartime conditions on the Latin Americas, and so emphasizes international trade relationships and internal monetary institutions and reactions. One has the feeling, therefore, of coming upon a museum of applications of monetary and international trade theory applied in the special context of nations of widely varying resources and climate, variously on the path toward industrial economies. In Parts I and II, six of the eight essays deal primarily with monetary and trade matters. To mention several of the number, without meaning to be invidious: Dr. Triffinn has an interesting article surveying government bank structures and history in the twenty countries. The inadequacy of the Kemmerer and other extremely orthodox banks in the face of depression and inflation furnish useful footnotes to modern business cycle theory. Dr. Wallich's study portrays the difficulty of fiscal policy as a means for mitigating business fluctuations in economies which are thoroughly dependent on foreign trade. Since domestic products tend to be in rather inelastic supply, government expenditures lead toward a rise in imports and exhaustion of foreign exchange. The outcome is likely to be inflation and depreciation. The alarm of classical economists at budget deficits is argued to have more justification in Latin America than in developed industrial nations not so much dependent on foreign trade. Professor Harris discusses in two chapters the relation of the exchanges to inflation, and the effectiveness of price control programs. In many of the most important countries of Latin America (including Brazil, Mexico, and especially Chile, but excluding Argentina), price rises since 1939 have far exceeded those of the United States. Expansion of domestic purchasing power reflects booming exports and inability to import more than limited quantities of foreign goods. The very considerable efforts toward price control have often failed, in part through violence of the pressure on prices, in part through reliance on paper authority rather than on effective administration. Exchange controls are expected to continue into the postwar years.

Part III consists of essays on the economic situations of Argentina, Bolivia, Brazil, Chile, Colombia, Cuba, Haiti, Mexico, Paraguay, and Venezuela. Corwin Edwards makes a hopeful comment with respect to Brazil which might perhaps be generalized for a number of the other countries, that their "resources and geography are better suited to an economy of light metals, electric power, and transport by auto and airplane, than they are to the age of steel, coal, and railroads which is passing." (page 294) Transport difficulties over rough terrain and lack of coal in adequate volume and quality may not continue definitive blocks to industrial progress as technical advance continues to revalue the worth of given resources.

The economists contributing are, by any standard, among the leading students of their subjects. Some of the essays are of a high degree of excellence; and all are useful for reference on their special topics and at their level of detail. If one must be critical, the organization of the volume implies some overlapping, most of which is pointed out by cross references of the editor. Since the book deals in large part with wartime problems, much of it will soon have only historical interest. One or two of the essays pack the facts close and rather indigestibly. Some arguments are doubtful, or else doubtfully presented. A casual reader might conclude to his surprise (page 24) that apartment houses and hotels do not contribute toward a higher standard of living. One wonders (page 128) whether the only financial gain from maintenance of debt service is the ability to borrow anew. But it is easy to be captious and draw attention toward a few statements that seem questionable and away from the genuine and persistent usefulness of the whole.

Material on Latin American economics is not easily obtained at this convenient level of detail—for the student, economist, business man, or government official who does not wish to make an exhaustive study but wants more than casual knowledge of our neighbors to the south. This volume will be a valued reference book on many a desk in Washington and elsewhere.

THEODORE MORGAN

Harvard University

City Development. By Lewis Mumford. New York: Harcourt Brace & Co., 1945. pp. 240. $2.00.

Those who wish to find the most sweeping and sometimes searching appraisals of our present urban problems must still be referred to Lewis Mumford. Even in the recently published collection of some of his hitherto scattered ad hoc essays on *City Development*, he manages to maintain a singleness of purpose and concentration on essentials which perhaps accounts for the perennial interest in his writings. Included in this volume are six papers ranging from a sketchy history of the city, some reflections on the metropolitan milieu, and the difficulties of mass production in housing to a critique of the London County Plan, postwar rebuilding and the replanning of Honolulu.

Many views expressed in his more expansive volumes are repeated or extended in these essays. Subject to pillory are the excesses of urban sprawl, the naivete of the prefabrication panacea, the crassness of our mechanized materialism and the countless frustrations of urban existence which Mumford holds largely responsible for our falling birth rate. Balanced garden cities integrated within a healthier, more rational, regional pattern are favored instead. Only industrial, political and cultural decentralization, he believes, can help maintain at least a stabilized population. Failure to satisfy these conditions leads him to reject the London County Plan.

Concern for the most wholesome nurture and expression of the human spirit seems to be the crux of Mr. Mumford's interest in city development: not just the history of the city though he has pioneered in that direction; not better housing and architecture though Mumford is a recognized leader in the movement; not even the rebuilding of our cities or the encouragement of regional cultures though much of his energy in the past quarter of a century has been spent in the reformulation of needed goals. These and still other interests reflect simply diverse expressions of a deep genuine humanism. This "biological" point of view, as Mumford puts it, is the unifying element of his thinking. It helps explain his insistence on the need for

enlarged real income through expanded community services, franker sex attitudes and relationships, a recasted urban structure to reverse the steady decline in the birth rate as well as his interest in primeval parks, modern technology and literature or his passionate views on the condition of man and a faith for living.

Mumford's panoramic perspectives may challenge those city planners who stand ready to reexamine their assumptions, their bearings and directions. Often, however, his high sights upon closer examination disclose little more than a ready or premature flair for generalization. For example, social control of industrial location under a competitive economy may be much more complex than Mumford seems to suppose: not only the London County Plan but even the Barlow Commission was quite cautious in the *negative* regulations recommended. Recent studies like Kate Liepman's *Journey to Work* indicate that drastically reduced densities and new cities are much more disadvantageous, costly and consequently prohibitive. France's population dilemma suggests that rural settings may be of distinctly limited value in curbing lower birth rates. Many who share Mumford's zeal for correcting our urban maladjustments are less prone to accept his loose, gloomy and not too strongly supported stages of history with Megalopolis ending in Necropolis if present trends are not halted. Mumford has never really proved that the vices of existing cities are not more nearly the reflection of their organization and socio-economic institutions than an inevitable function of size and density.

Much of what can be carped at in Mumford's writings may be ascribed to inadequate documentation and analysis. Contrast, for example, Mumford's report on Honolulu, an excellent document in many respects, with the London County Plan. Part of the differences, of course, stem from the varying character of the assignments for the authors. Would that however absolve Mumford entirely for the dearth of attention and detail devoted to what is essentially the heart of a community plan, viz., economic background and trends?

Perhaps the geographers and sociologists have not "reached unanimity in defining the region"; but the reader may wonder whether it is not only *one* kind of region that must combine "the primeval, the urban and the rural as part of the daily setting of life." In any case, much difficulty would beset those who would attempt to implement Mumford's notions in the absence of a definition more serviceable as an analytical tool.

Mr. Mumford's comprehensive studies for all its blemishes still outrank present competitors. Few men in the field can illumine the subject of urbanism with such a wealth of insight and information. Its impressiveness might be further enhanced were the tone of the observations less pontifical and if some of his strong positions had equally strong defenses.

LLOYD RODWIN

University of Wisconsin

Plainville, U. S. A. By James West. New York: Columbia University Press, 1945. pp. 226. $2.75.

Plainville, U. S. A. by James West—both names are pseudonyms—is a detailed study of a rural community on the south-central fringe of the Midwest. So detailed is it in some aspects that many readers will squirm at the apparently nonsensical items he emphasizes.

To the general reader the book probably has some of the earmarks of a nonfiction "Main Street"; to the "white tower" social analyst it should be excellent testimony that the commonplace is interesting, even alluring, and an excellent field for exploring social processes; to the every-day rural sociologist, it will merely be grist for his mill.

The book is easily read and has a minimum of scientific language, although full of local colloquialisms which aren't always as illuminating as they should be. The author carefully follows his stated intentions of anonymity for himself, his characters, and his locale throughout the book; too carefully, perhaps, for those readers who may question his own background, biases and implications.

Mr. West lived in Plainville during parts of 1939 and 1940. He traced the history of the community through published materials and reminiscences of local citizens. On the basis of interviews and personal observations he recorded its values, traditions and atti-

tudes. His principal objective was "recording data related to 'acculturation' and collecting enough background material on local history, religion, education, economics, social organization, and attitudes to render this data intelligible." However, as he went along, two additional objectives or problems were added to the scope of his investigations —a description of the class system, and an analysis of the 'socialization' process through a study of "the local educational system, especially its non-school aspects."

Class conscious social analysts will find much grist in his observations on the major classes found in this community "where ever'body is equal." His schematic and detailed analysis of this phase of his efforts make very interesting and worthwhile reading.

The basic ingredients, social, economic and psychological, of Plainville are common to the thousands of small communities in America. Plainville is not a "typical" community—it merely represents a point on the continuum of society. Readers can readily recognize certain features of their own home town in the author's analysis of Plainville.

Professional educators will probably damn "Mr. West" long and luridly. He penetrates too deeply and exposes too publicly their masquerade of efforts and accomplishments at the local community level. His indictment of their primary tenacles—the vocational teacher and the county agent—will be especially irritating to agricultural college folks. Likewise, rural sociologists will militantly attack his condemnation of their profession on the basis of "mistaken identity."

Technically, the social analysts will quibble with "Mr. West" about his implications and his methodology. His "factual and inferential" presentation, wherein facts do not always support his inferences, will cause some readers to wonder whether he actually was a "participant observer" or more aptly a "precipitant observer." Those familiar with the inherent dangers in the role of the observer in social situations will suspect the latter.

Regardless of the individual reader's reactions relative to the sins of omission and commission, this book should be added to the reference shelf of those interested in cultural analyses of rural America.

J. Edwin Losey

Purdue University